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THE PSYCHOLOGICAL REVIEW

THE MAN, G. STANLEY HALL[1]

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A year ago tonight one of the most productive psychologists of the world was the newly elected President of this Association, G. Stanley Hall.

Your Secretary has asked me to perform a task at once sad and pleasant; sad because of the sense of loss I share with thousands the world over; pleasant because I deem it an honor and a privilege to bring my humble tribute to the memory of a great master.

To attempt here any adequate portrait of the man, G. Stanley Hall, would be out of place. Fortunately, in his autobiography he himself has given a rather intimate account of his own personal characteristics and the mental processes involved in his development. Every one acquainted with him knew the surprising scope of his mental powers, the breadth of his reading, and the charm and stimulus of his conversation. Dr. Sanford has given the best brief statement of his dynamic personality, his courage, and his perennial sympathy. In an address given several months before his own sudden death, which this Association so deeply laments, Dr. Sanford emphasized as the criterion of what is most admirable in human living and action, three things—active-mindedness, kindliness, and aspiration. Then, applying the test to Dr. Hall, he said:

[1] Address delivered before the American Psychological Association at the Session in Memory of G. Stanley Hall, December 30, 1924.

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"A more alertly active mind I never knew; he seemed proof against both fatigue and age. He showed kindness without limit to those who came to him to learn; and most of the harvests which his pupils have later gathered have sprung from seed which he first lent. But most of all characteristic of him was the perennial youthfulness and hope with which he faced the future and in which he lived. There was no sentiment more often on his lips in public speech than confident prediction of better things to come; it is sun-rise, not sun-set; and far greater conquests await the human spirit than it has ever dreamed. In Dr. Hall's life also there was not lacking the happy combination of other virtues which we have held to be implied by the three of our test. He was temperate in all things, unless it be in his devotion to his work; he was just, and his justice was tempered with mercy; his courage and fortitude carried him steadily through years of disappointment and hope deferred. He took what was coming to him like a man, and burned his own smoke. In nearly forty years I have seen him angry a few times, but I never once heard from him the suggestion of a groan, or a syllable of self-pity. Sympathy he had in abundance for others; for himself he never asked it. His life was the life of the man of science and the teacher." Such was Dr. Sanford's noble tribute.

Today a sketch of any great man's personality should contain an analysis of his physiological, psychological, and moral make-up, in its heredity, its educational genesis, and in its relation to environment. It is perhaps too soon to make such an analytical study of Dr. Hall. I at least have been too near to him and it may be too much interested in certain of his characteristics to do this.

Freud and some of his disciples in this country might wish to make a psychoanalytical study of Dr. Hall; and if they failed to find adequate material in his writings, they would at least find ample stimulus for the imagination. I have no intention of attempting anything so rash. The humble task of describing some characteristics of the man as they impressed me during forty years of rather intimate association

with him, seems easy; but as one attempts it, one finds his personality was so rich and many-sided, the outstanding features so many, his knowledge so vast, his memory often so poor, his activities and interests so varied, his associations so unique and manifold, his reasoning so rapid, and his judgment so intuitive, the effect at first is something like that his lectures often had upon new students—confusing, bewildering, dizzying.

Again, in spite of the great diversity of his mental associations, the different features were highly integrated. Thus one recalls an outstanding characteristic and then sees how inadequate is one's description because it stands in such significant relation to the other characteristics. An adequate description of a single feature can hardly be given except in relation to the whole. But my task is rendered easier by the fact that in case of so great a man one need not fear to speak of faults as well as virtues. Dr. Hall would have wished no one to represent him as a paragon without the human frailties he shared with the rest of us.

It may help a little if we adopt something of Dr. Hall's own method and merely catalogue some outstanding features. He loved to learn and do many things, retaining much of the child's naïveté and lack of self-consciousness, together with the adolescent impulses for self-discovery and self-assertion; was sympathetic with all human activities; understood perhaps all kinds of people; was a man of strong emotional life, extremely sensitive; had faith in others, sometimes to the point of credulity, as he himself said, he had been bitten by everything that bites; withal, in spite of his strength and abundant courage, nevertheless having his fears like the rest of us, sometimes inhibited by a sense of inferiority, probably normal to a genius who can face reality; but always controlling his emotion, rising above his inhibitions and usually in the face of his fears adopting the direct method, doing the things that he was afraid of. He recognized too, dangers in our present society; but from his genetic point of view was an optimist.

Two or three characteristics may be described more in

detail. First of all the freedom of his mental processes. Although handicapped by early training in a New England society made unnecessarily nerve-destroying by convention and petty restrictions, Dr. Hall in unusual degree had that freedom from inhibitions that Bateson suggests as the essential mark of genius; and in hours of recreation he could drop back to the normal attention of children, at primitive levels of interest and behavior; and, on the other hand, when working at his best, he could rise above the inhibitions of the ordinary man; and we find him working with great economy, with a great head of interest, picking out significant facts, ignoring the insignificant and unessential, seeing an author's significant contribution more clearly perhaps than the author himself, picking out the words and phrases that crystallized the author's thoughts, and presenting his syntheses of many subjects and an enormous amount of data clearly and cogently; and having the further power to make original and unique associations to such an extent that he was sometimes charged with being absurd, but with such force and vividness that his writing was intensely interesting, and the man himself always stimulating.

Dr. Hall not only had this freedom himself, but gave freedom in large measure to his students and colleagues, and was not willing that they should be governed by artificial limitations and unnecessary inhibitions. He gave his coworkers the stimulus of opportunity and merely asked for results. In more than thirty years of giving instruction with him in his own department, I doubt if he gave me special suggestions in regard to my work once a year. An equal freedom prevailed in regard to opinion.

A concrete example of this may be cited. For many years Dr. Sanford and myself accepted in modified form the Lange-James theory of emotion. Dr. Hall did not accept this. Nevertheless Sanford and I felt no embarrassment in presenting our own view to the students. As a matter of fact, with mature graduate students, I fancy the jolt they received from finding their instructors holding conflicting beliefs in psychology gave a wholesome stimulus. With him there was

opportunity for student and instructor to do his own work in his own way.

Again special note should be made of his sympathy—his sympathetic attitude with every one, his sympathetic stimulation of students, his sympathy with an author's message, however unconventional or bizarre.

Perhaps no better illustration of his social and professional sympathy could be given than of the stimulating effect of a conversation with him. From the presence of some men we go forth feeling very small; like Balzac's magic skin, our personality shrinks with every word they utter and with their eloquent silences. No one, however, unless a slacker or a bluffer, was likely to go from Dr. Hall with this sense of inferiority; one might feel humble because of one's lack of knowledge, but one had added self-respect and felt one's ability to work wonderfully stimulated.

One of his students recounts the awe with which he first called on Dr. Hall and his feeling of forlorn littleness as he waited for him in the hall, and then adds:

"But soon I was chatting amicably, freely, comfortably with one of the cheeriest, most sympathetic and at-homey gentleman I had ever met or will ever meet again. All my fears and discouragements vanished like a puff of cigar smoke in a breeze. My diffidence was changed swiftly, electrically, into a feeling of downright, simple, unaffected human fellowship. An age seemed to pass in a few rapid minutes, and I left the house conscious only of a hearty handshake and a rosy haze of bewilderment and wonder at the possibility of miracles in the life of man today."

At his next call, if I mistake not, Dr. Hall introduced this student to Freud and then took him for a walk and a swim. Another of his students, in a portrait of his character and personality, after describing his stimulating influence as a teacher, writes:

"He liked to make his students see that their business was not the digesting of books, however necessary that is as preliminary, but that their business was the synthesis which is discovery, and that each of them might aim toward making

some contribution, however slight, toward the sum total of human knowledge."

Dr. Hall's method of teaching and writing makes one feel that a sympathetic attitude is essential to the scientific method. He often put himself so completely *en rapport* with an author that, as he proceeded, the hearer or reader might forget that Dr. Hall was not presenting his own views and might charge him with himself holding the opinions presented. Thus when Dr. Hall published the first edition of 'Jesus the Christ in the Light of Psychology,' he attempted, as I understand, to *résumer* and present practically everything that had been written on the subject, presenting the views of historians, psychologists, theologians—scholars and cranks alike. Certain theological writers apparently had a rich time pointing out long exploded views that Dr. Hall had presented.

Dr. Hall's mental regimen is specially worthy of study. In the first place, he had remarkable power to focus attention on the present situation, shutting out the distracting events of the past, and the trials and duties of the future, concentrating his whole energy on the task of the moment. For example, I have seen him preside at a committee meeting, or the like, when a serious matter was pending the next hour; and yet one would never imagine that he had a thought beyond the work of the committee or any unusual cares or worries. It was largely this integration of his personality and this ability to concentrate his energies, that accounted, on the one hand, for the vast amount of work that he did, and on the other, for the superior character of his performance.

To me with perhaps the professional caution of the hygienist, whose business is prevention, the degree to which he allowed himself to be absorbed in the present and to neglect obvious means of preventing trouble, was amazing, justified only in part by his wonderful ability of meeting a difficult situation when it arose. This attention to the present apparently increased his ability to make quick associations.

This was often best shown perhaps in little trivial things

with which none except his immediate associates were acquainted. The meetings of his seminar furnished many illustrations. A single example may be cited. In the old days at Johns Hopkins the seminar met in the university building at eight o'clock and consisted of perhaps a dozen graduate students who sat around a table and discussed the more formal papers presented.

At one of these meetings an elderly man, who had a peculiar philosophy of the universe, was given the opportunity to speak. This guest was treated with the usual cordial hospitality. At the informal opening of the meeting, in anticipation perhaps of the intellectual feast that the philosopher felt that he was to provide for the students, he turned to Dr. Hall and said: "Dr. Hall, will you please say grace?" This remark caused an embarrassing situation. To avoid rudeness to the guest or else the creation of an unfortunate attitude in the minds of the students, seemed impossible. In such a situation the ordinary man would be likely to fall on one horn or the other of the dilemma, or else hesitate, with the inevitable result of social disaster. Dr. Hall, however, replied immediately, "I have done so already," and thus showed his usual courtesy to a guest and won admiration from his students for his quickwittedness.

One of the most fundamental principles of mental hygiene emphasized by modern investigations, is that which enforces the scientific attitude in every situation of life; or, as the psychiatrists say, the willingness to face reality. This scientific attitude Dr. Hall attempted to make fundamental; not merely in his investigations, but in his personal life, in his associations with others, his judgment of society, and his attitude toward the great problems of society.

One's personal emotional problems, even superior men, the psychiatrists tell us, are apt to fail to solve or to solve badly. How the man of genius really does solve his personal problems the world seldom knows. Dr. Hall had plenty of difficult situations to meet, tragedies and bereavements as well as professional difficulties; yet he not only faced them and kept at work, but kept serene and cheerful. Even the inevitable end,

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that 'old, old fashion death,' the fear of which seems well-nigh as universal as the fact itself, he faced as a reality. Some weeks before his death, when it was expected that he would recover, and continue his work, he told me that to this fear he was immune, and that in his study of senescence he had faced reality here. That to others in their personal problems he was a good mental hygienist and a helpful adviser, many, if I mistake not, whom he saved from going to pieces, can testify.

Again Dr. Hall appreciated and utilized thoroughly the gospel of work as the preventive and cure for mental distractions of every kind. Few men worked so hard, so long, and so well as he; and work to him by no means meant mere activity and the doing of routine duties and the like; on the other hand, it meant intellectual activity of the broadest and highest kind. In fact, his motto, practiced as few men are able to practice it, was always to work at his best; and no occupation, no task, no problem for special investigation was really worth while that did not give the opportunity for superior work at the pace he was capable of; and thus again as a good hygienist he believed it necessary to keep mind and body at the highest level of efficiency, so that one might be able always to do his best work.

He was able to make the normal reaction to his affective life by the multitude of his activities and the vicarious interests of which he had such an abundant store. For an example of the self-control made possible by many permanent interests, his life is especially worthy of study. His great tasks kept his mind clear and his temper wholesome to the end.

As a mental economist Dr. Hall had unusual perspective. As Kipling would say:

> So huge the immeasurable thought that drove
> So brief the span allowed,

he had no time to contest and wrangle about differences of opinion, no time to quibble about words and forms of expression, no time for petty jealousies and controversies, no time to defend himself, to mend his own fences; no time even

to take the obvious means of protecting himself from misunderstanding and blame; no time to develop his sense of inferiority by dwelling upon criticisms; no time even to think of the banal and the mediocre.

Incidentally, however, it may be worth noting that by the obvious errors he sometimes made he furnished rich opportunity for critics, the great, the near great, and small, to compensate for their own sense of deficiency by correcting him. It was a source of pleasure to teachers to point out his slips in pronunciation and the like. Classical scholars were perhaps never so much shocked in their lives as at his neologisms and errors in Latin forms. And sticklers for a conventional vocabulary naturally complained of a writer who described the enjoyment of a work of art as the 'acme of hedonic narcosis'; and said that, when one is stirred by music, he 'senses the vast encompassing phyletic environment.'

Educators so-called could make pages of good copy by showing up his obvious blunders; and by calling attention to what they deemed his errors in pedagogical doctrine. Even to some psychologists his work seemed to be chiefly significant as giving occasion for the compensatory reaction of drastic criticism. Thus the man of genius by his limitations may furnish opportunity to others to employ the best remedy for a sense of inferiority. In this therapeutic service Dr. Hall did his share.

It is noteworthy that, although Dr. Hall had unusual ability in debate and could cut an opponent all to pieces, he seldom if ever answered the critics of his books, and did not usually adopt a critical method in reviewing the books of others. He had more important work to do.

Among his own students, in his own seminar, I am not sure that he did not sometimes make more or less erroneous statements purposely, in order to get out of certain students something more than a mediocre reaction. In any group where he was present, however, it was a rare thing for a serious error to pass unchallenged. Read, for example, his discussions at the meetings of the National Council and the National

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Education Association. At a meeting of educational psychologists Dr. Sanford reports that in a discussion of experiments on learning, a resolution was proposed to the effect that the results of formal training do not transfer. As the group of psychologists were on the point of passing this resolution, Dr. Hall quietly asked if they actually proposed to settle a great psychological question by a show of hands. It is hardly necessary to add that his question inhibited the movement and the resolution was never voted upon.

Thus Dr. Hall had this sense of the value of time and was always ready to neglect the unessential for the sake of the essential and to sacrifice even what is good for the sake of what is better.

Do not imagine from all this that he had the modern attitude of hurry and had not time for the things that really count. In all his busy life he did have time to be courteous to the great and humble alike. He was never too busy to be kind to a child or to help a student. He had time for music and art and recreation, was fond of artistic dancing, the theater, and even the motion picture. He had time for an enormous amount of reading, for making great surveys and syntheses of scientific knowledge and human thought, and to add his own unique contributions, which have inspired so many students and shown the significance of the genetic method.

Visitors from abroad marvelled at the freedom with which students had access to Dr. Hall, and he was not merely democratic but cosmopolitan in his open-mindedness to the views of every one, conservative or radical, high or low. Those who knew this democratic character of Dr. Hall and his belief in opportunity for education for all according to their ability, may be surprised to hear me say that both intellectually and socially he was an aristocrat. What I mean is best expressed in the passage some of you will recall, where James describes a gentleman. He says:

"To ignore, to disdain to consider, to overlook, are the essence of the 'gentleman.' Often most provokingly so; for the things ignored may be of the deepest moral consequence.

. . . It is not only that the gentleman ignores considerations relative to conduct, sordid suspicions, fears, calculations, etc., which the vulgarian is fated to entertain; it is that he is silent where the vulgarian talks; that he gives nothing but results where the vulgarian is profuse of reasons; that he does not explain or apologize; that he uses one sentence instead of twenty and that, in a word, there is an amount of interstitial thinking, so to call it, which it is quite impossible to get him to perform, but which is nearly all that the vulgarian mind performs at all. . . . In the latter, the best ideas are choked, obstructed, and contaminated by the redundancy of their paltry associations . . . the function of ignoring, of *in*-attention, is as vital a factor in mental progress as the function of attention itself."

Dr. Hall was a fine example of this intellectual aristocrat that James describes.

What great men from Themistocles down have desired, Dr. Hall possessed—the ability to forget. And I do not mean by this the Freudian defense mechanism of the executive, but apparently he might forget more things in a night than the ordinary student often learns in a week.

If sometimes he forgot the place where he found a significant fact, or did not notice that possibly his stenographer had omitted a reference, or that he had forgotten to give credit for questions or methods, this naturally seemed unpardonable to the contributor, to whom, perhaps, being his own, this was one of the biggest things in the world. Or, if a student went out of Dr. Hall's study today, burning with enthusiasm from the suggestions received in regard to a subject for investigation, and then spent days perhaps in reading and studying, engrossed with this one thing, when a week later he called again on his teacher, he may have been puzzled. Something like this may have happened. During the week, through the mind of Dr. Hall a thousand things had passed. Counted by experience, he had lived months while his student had lived days; the experience from varied concrete situations, meetings with distinguished visitors, consultation with trustees, instructors, other students, problems of administration

and method, a voluminous correspondence, study of a score or more of books, consideration of new contributions and new points of view and the like, had accumulated.

The student, on the other hand, came back with the mental attitudes and interests he carried away the week before, enriched and enhanced by his own study and investigation of this one thing. No wonder sometimes Dr. Hall's attitude at this second interview seemed strangely indifferent, actually having forgotten largely what he had said before, and perhaps actually suggesting a new subject, or even contradicting himself.

While the sensitive and pedantic student might never forgive Dr. Hall for this, the best students soon learned that the contradictions of genius are as innocent as the lies of children, and that the tutelage of a great master means, not conventional consistency, but opportunity for one's own investigation in a stimulating environment.

Such in some small part was Dr. Hall's mental regimen and mental economy, a method of work, barring perhaps two long periods, remarkably efficient and healthful.

Many of these characteristics perhaps are not unusual. In many of them some men have had perhaps a better development than he. Many men have had more orderly habits of association. Some men may have chosen more wisely what they would neglect. Some perhaps may have faced reality better. Many men probably have had better and more pedantic memories; many have been more meticulously conscientious; but few if any have had a better mental perspective and been such good mental economists, succeeding so well in eliminating mental waste and in ignoring and inhibiting the mediocre. Although open-minded to every new movement, hospitable to every new idea, eager to learn of every adventure of the human mind everywhere, he was nevertheless the gentleman and the aristocrat in his thinking as well as in his behavior.

Just as in his professional activities he refused to waste his time with red tape and the details of an academic machine, so he refused to waste his mental energy in thinking of the

trivial and the unessential. This seems a simple thing to do. The point is, he did it; others seldom have done it.

An outstanding characteristic of Dr. Hall was a dynamic personality. Perhaps the best evidence of this was the fact that so many teachers, educators, and psychologists exhibited toward his teachings emotional reaction ranging from denunciation to well-nigh adoration, and then attempted to rationalize them; but few were indifferent.

The *written* contribution of a superior man is likely to remain as a permanent increment of the world's knowledge. The memory of the *personality* of a superior man is liable to be lost. In case of Dr. Hall one can hardly get a clear understanding of his written psychological contribution without a knowledge of his great personality; for like most writers in treating of a subject, he gave no adequate account of his method, his point of view, and his personal equation.

Hamilton, one of his most sympathetic disciples, has marvelled at his courage in attempting his vast synthetic surveys of diverse and multitudinous data, and he adds: "But the greater miracle, to me, is the fact that his epochal books reflect not only the struggle of a great intellect with the world of fact; but that they also paint a strikingly beautiful picture of a successful experiment in the art of living, a strenuously happy life!"

Thus one cannot separate the scientific student from the man and the prophet. When Dr. Hall took favored students with him to walk, the experience was that of good fellowship and exhilaration. When he took larger groups of students on intellectual excursions the experience was that of higher companionship and of amazing suggestiveness.

Himself, a bold adventurer in new fields of science and education, he afforded his disciples the stimulus of horizon-breaking experiences as exhilarating as they were unusual and oftentimes surprising. On his intellectual excursions, to the student who had ears came echoes from the far distant past, and to one who had eyes as well, prophetic glimpses of a far distant future. On the one hand, atavistic reverberations of pre-human stages of development, a sort of psychological

paleontology; and, on the other, visions of a far-off millennial pedagogy, whose goal was the development of some superman, whose symbol, the child at play; withal a genetic pedagogy that recounted long forgotten secrets about oneself and the human race, and gave golden prophecies of some great Utopian state of brotherly love, happiness, and freedom.

Again, we cannot separate the man from the teacher. Time would fail me to tell of his contributions to education, from the kindergarten to the university. He was the champion of the rights of children and of youth, fighting against slavery to scholastic convention and academic machinery. His faith in youth was the basis of his optimism. The world is sound at the core because youth is sound. Thus we must add the figure of a bold warrior far ahead of his followers in the eternal conflict in practical education. Those who are able to share in his optimism, will see also in the vision, that 'when the forts of folly fall his body will be lying near the wall.'

To those who knew Dr. Hall intimately I should like to recall the charm of his priceless friendship; but the best things in human life cannot be described in words. For myself, I am thankful that it has been my lot to live in this age and to have known Stanley Hall.

G. STANLEY HALL AS A PSYCHOLOGIST[1]

BY EDWIN DILLER STARBUCK

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There were giants in those days. There seems to be, as peoples grope towards the esthetic and intellectual levels of attainment, a prophet-leader stage when the great man arises who can fill the mental horizon of his generation, who can scatter the darkness and open up new lines of progress. Special departments of life—statesmanship, art, invention, religion—have their stages and epochs of clarification through the dominant leadership of great personalities. These hero periods soon pass. The reciprocating, corporate activity of the many takes the place of the dramatic urge and sweep of individual achievement. Men come to be known by the intensity and fineness of their contributions rather than for their integrating and prophetic power. After that, only crises in development can create and discover dominant and spectacular personalities—Jesus, Thomas Aquinas, Lincoln, Wilson.

The sciences usually seem, do they not, to pass through the big-man stages when great pioneers of progress more or less suddenly and violently disrupt some special phase of knowledge from the general mass of information about everything in general and help to organize and set free new departments of insight relatively independent as to problems, technique, and application—Darwin, Copernicus, Newton. Then differentiation and specialization set in, after which the science grows organically, so to say, through the combined and refined work of the thousands.

The new but already very proud science of psychology, has been passing through its pioneering days. Its great leaders have arisen, defining its problems, discovering its

[1] Address delivered before the American Psychological Association at the Session in Memory of G. Stanley Hall, December, 30, 1924.

methods, fighting its battles, shocking its workers into a saving degree of self-consciousness, organizing its forces, giving it a language, establishing journals as avenues of expression, and in general setting it up as a going concern and an active force in the world.

But now have the mighty fallen. One by one the prophet-leaders of our science have been going from amongst us—Wundt, Ribot, James, Ladd, Hall—and 'the world seems poorer now without them.' A hush of silence seems to fill the earth; for there is nothing quite so challenging to the mystery and majesty of life as when great souls so full of buoyancy slip so quietly out of our midst.

When asked to have a part in this program I was reluctant to undergo the delicious ordeal. It did not seem to me humanly possible for any one properly to evaluate Hall as a psychologist, for surely he is the most intricate, dominant, involved and self-contradictory personality that has come upon the psychological horizon. I finally consented only after hitting upon the idea that you should all be asked to participate by confessing what Hall has meant to you personally in a psychological way, what he has contributed or failed to contribute to the subject and the relative merits of his various studies. I would be your scribe and secretary, I promised, and give back to you as faithful a composite picture as possible. You have done your part delightfully. One hundred and sixty-five of the members responded, a good many with such care that the papers, by consent of the writers, must be turned over to some one who is to write a life of our colleague whom we honor.

That I should be a cataloguer of opinions and that I should even place in your hands a digest of some of your judgments seems not out of tune with the proprieties of the occasion. It is the way of going at the job that Hall himself would have liked best. A member of our craft who is now occupying an administrative position, though not a teacher of psychology, writes: "I am sure the report you are preparing will bring much pleasure and satisfaction to Hall himself." No matter what one's eschatology, there is here a safe criterion of good

taste: if our friend were meeting with us in real presence, what would he most enjoy? I am sure he would find pleasure in the graceful words of appreciation expressed by my colleagues on this program. His spirit would glow also in feeling out the sentiments of appreciation that stir our hearts but can find no words with which to become articulate. I think he might like best of all that we move right on and take account of stock while we ask in candor and integrity of thought what his real successes and failures have been after more than half a century of honest striving. That was the Hall way. He kept on psychologizing to the very end. He was not only a sensitive soul but a rugged and sportsmanlike spirit as well. When senescence threatened to slow down at last that perennial youthfulness that skated at sixty and laughed and worked through the seventies, his quickened thought grew sharper, attacked his pursuer as a problem and made out of it a dissertation that opened up what one of our contemporary biologists designates as a whole new branch of biological science. When he saw the Fates edging in to draw a curtain across his career that would land him in defeat or dark mystery, so far from closing his eyes and turning away, he plied these sinister presences with a thousand questions about the secrets they were hiding. Not being able to forsake his psychological sense for sentiment, as if he were, for example, a professor of physics, he at least wrung from them enough of prognostication about immortality that his fellows have judged it a contribution not without merit. So that on this occasion when every word spoken might well be the note of a majestic Requiem or a Dead March or an Heroic Symphony it is not inappropriate to glance at a table of rankings and ratings. Hall would like it—at least he would in his graceful manner make merry over it with the remark, perchance, "This is indeed Inferno that I should be plagued even now with a statistical table."

It would in the first place touch off the vanity of any one who was blessed at all with a measure of pride to be rated so uniformly high among the world's psychologists. All except 21 out of 120 place Hall at least among the first ten. Seven

ESTIMATES OF THE RELATIVE VALUE OF THE CONTRIBUTIONS OF G. STANLEY HALL TO THE FOLLOWING FIELDS OF RESEARCH AND SPECIFIC PROBLEMS

You might check one of the first two columns and also one of the last five. (Inquiry sent to all members of the American Psychological Association.) 160 members responded. 123 sufficiently complete to tabulate. Clark University men and other than Clark men tabulated separately.

Problems	Rating		The Pioneer		A Pioneer		Valuable		Useful		Slight		Negligible		Negative	
	Non-Clark	Clark	N-C.	C.	N-C.	C.	N-C.	C.	N-C.	C.	N-C.	C.	N-C.	C.	N-C.	C.
Studies of Childhood	10.99	11.83	20	11	47	18	26	10	12	2			1			
Adolescence	10.85	11.44	33	20	35	7	33	12	11	2					1	
Human Genetics	10.4	11.36	11	13	48	14	28	9	9	2	5	1			1	
Senescence	10	10.95	21	12	27	11	30	10	15	3	4	2				
Educational Problems	9.4	11	4	3	31	16	36	16	14	1	2		2		1	
Sex	8.8	9.8	7	2	31	17	29	11	15	6	5	1	2		4	1
Play and Recreation	8.75	10	4	1	19	15	34	13	23	5	2	1				
Morale	6.77	12		3	12	9	15	8	25	11	8	1	1		1	
Fear	8.2	10.82	5	3	15	12	26	10	14	5	7	2		1	1	1
Anger	8.1	9.2	4	3	16	12	20	8	17	6	7	2			1	1
Character Education	8.11	8.07		1	13	7	25	10	25	7	1	1		1		1
Interpretation of Thought Movements	7.11	8.03		1	11	6	15	11	20	10	6	1	2	1		
Methods of Research	6.84	7.33	2	1	22	14	19	4	18	9	13	5	5	3	4	1
Jesus the Christ	6.82	9.81	5	4	12	11	19	12	18	4	5	2	7		4	
Experimental Psychology	6.55	6.1	3	2	25	13	10	5	15	8	11	6	12	3	4	
Psychology of Religion	6.42	9.95	1		24	19	22	11	18	7	9	1	5		1	
History of Psychology	6.39	7.86			6	6	21	13	18	8	7	1	5	2		
Race Psychology	6.2	7.31			15	11	9	4	17	10	12	5	4	2	2	
Psychology of War	5.46	7.6		1	6	7	13	7	23	10	11	4	3		1	
Mental Heredity	5	6.31			7	10	11	4	13	8	12	4	6	4	4	2
Immortality	3.5	6.6		1	6	6	4	6	10	4	10	6	7	3	6	
Eugenics	5.3	5.3		1	9	4	9	5	19	4	13	8	6	4	1	
Animal Genetics	3	6.5		1	2	8	3	5	12	8	13	4	13	4		1

Ranking of Hall	Number	First	First Ten	Second Ten	Upper Quartile	Second Quartile	Average	Other
Non-Clark	84	4	59	8	10			1
Clark Men	29	3	24	1	1			

give him highest rank. Six others rate him as either second, *i.e.* next to James, or among the first four or five. There can be no doubt that Hall's name is written near the peak of the pinnacle of fame within his field. These eight sentences from as many different members of this organization are characteristic: "I think Hall stands fairly supreme among all the great leaders in psychology"; "I always felt that G. Stanley Hall lent dignity and grace to the entire field of psychology"; "He is unquestionably one of our foremost psychologists"; "I have always grouped Hall with James and —— for vigor of mind and stimulating influence"; "In many ways he made present American psychology"; "He has thrown more problems in my way than has any other American psychologist"; "The most conspicuous figure in American psychology"; "Hall seems to me to have been the man most fertile in suggestions, the most original in his ideas, and the greatest teacher America has seen." Not one of these representative sentiments just quoted is from a Clark man and none of them are from persons who ranked him first.

There is, as would be expected, a wide range of estimates. Hall, like any other person who has lived dynamically and dramatically, has run both limits in the scale of excellence according to his friends, all the way from near sainthood to something very inglorious. One person remarks with some fervor, "Among contemporary psychologists I would place G. S. H. as of rank below zero." Another, who has not transfixed him with a point and stuck him on a scale, would doubtless have placed him far below par. He says, "Hall was an unaccountable genius. I never believed him normal." We then take wide sweeps on up to the norm of judgment, which is among the first ten, and on to those who give him unstinted admiration. One remarks, "Though there are many eminent psychologists and educators among our contemporaries, there is none who can claim to equal his achievement." Another says, "Dr. Hall started more lines of new thought and set more persons to thinking psychologically than any other person in all history. Some others have been more

methodical, have developed more refined technique, and have been better text-book makers. But no other one has had such vision. The analysts, the measurers, the experimentalists, the psychoanalysts, the applied psychologists, all must pay tribute to him for having opened up new vistas in their respective fields. He is the one really original thinker in psychology in all history. James comes next. Some others I could name who are called great are mere technicians. He is the Edison of psychology."

Although these estimates seem rather enthusiastic, it is an interesting fact that those of Clark and every other school who rate Hall among the first ten, no matter how terrible their criticisms, tend to betray a higher estimate than their rating would indicate. One of them, this time of the Clark vintage, a chronic and successful rater, says, "My chief benefit from Hall's teaching and writing has come in the form of inspiration. There was a time when I took for granted that his scientific views were sound. For years I have been able, I think, to reap considerable benefit from his books and articles without believing much that he wrote." Then after some trenchant criticisms, this person continues: "But when everything is considered I doubt whether more than three or four psychologists in the last fifty years have done more for their subject than Hall." Another who rates him after the mode says, "He has been the cause of more writing and research than any other three men in the field."

As an illustration of how, in spite of the terrors of the antipathies against Hall and his school, fanned often into a flame, perhaps, by jealousies and rivalries, the majesty of his personality and of his idealism command recognition, I can do no better than quote from the letter of one of our most respected technologists: "I was a student at ———— when 'Adolescence' appeared. I read many chapters, my impression growing all the while that the writer was very fertile and original but exceedingly verbose and lacking in critical discrimination or good judgment as to what should be included or omitted in his compendium. . . . He seemed to me to be in the intellectual twilight zone between genius

and insanity, and those of his own pupils with whom I happened to come in contact in the early days of my psychological experience, were, it seemed to me, most of them cracked. Later experience taught me how profound his influence was upon some very brilliant minds; but it is useless to deny that his seminar has had a peculiar attraction for freaks who have done a good deal to make our science ludicrous in the eyes of sensible people generally. . . . . Of course, when I met Hall personally and heard him lecture I recognized instantly the loftiness with which he towered above the level of American psychologists. He certainly belongs somewhere among the first five psychologists of our time, perhaps he should be ranked second."

Among the competitors of Hall for first place in his field are: William James (most often mentioned), Wundt, Ladd, Stout, Stumpf, Külpe, and Ebbinghaus. There are also four American contenders for the distinction, each mentioned once or twice, whose names I shall not divulge, in order to give every one a chance and to keep you all guessing. There is an interesting literature on comparisons of James-Hall-Wundt, Hall-James-Ladd and the like from which time will not permit quotations.

Enough about ranking. Hall was a pioneer. He was either '*a* pioneer' or '*the* pioneer,' as the table shows, in the opinion of a goodly number of his colleagues, in every one of the many and diverse fields in which he worked. This side of Aristotle or Leibnitz there is probably no other mind that so combines versatility and originality. Quoting from my helpers, "Hall was the most desirable kind of a pioneer,—one whose work indicates the immense fields as yet untilled." "He dared to apply the methods of science to fields that had been sacred hitherto either from prudery or superstition, —witness his 'Adolescence' and 'Jesus the Christ.'" "I like to refer to his writings in spite of the fact that my advanced training was directed by ———— and ———— and ————. I always found them interesting and suggestive and always felt that he had taken me out on the frontier of psychological inquiry." Two of our leading

psychologists would pluck the plumes away. They designate this colossal worker, "an organizer and popularizer rather than a pioneer." But if the majority judgments were to constitute election to fame among the souls who dare to move out into new fields the following would be the true composite picture: "He was a pioneer in his achievement and by nature; courageous, daring, resourceful, ever watchful for new trails and new ascents. He took large risks with eyes open; endured bafflements with stoicism and gathered strength by removing obstacles. And perhaps more than this generation realizes, he suffered for part of his pioneer work and for his unflinching purpose to discover and publish the truth."

An index of the appreciative attitude of the members of this Association towards Hall's various contributions is found in the increasing weight of the voting on the several items as one moves towards the left of the table of values, that is, towards a gradation of higher worth. The numbers represent actual number of votes. The 'pioneer' columns mean in general rather higher valuations than do the ones designated as 'valuable'; for although the sheet bore the legend, "You might check one of the first two columns and also one of the last five," these careful-minded scientists for the most part did not notice that instruction and clearly considered the captions as a graduated scale throughout. The numbers pile up in general towards the higher rating. A little compilation would show that for the items taken as a whole there are, in the rough, six times as many votes for 'slight' contribution as for 'negligible,' four times as many for 'useful' as for 'slight,' twice as many for 'valuable' as for 'useful,' and twice as many for 'pioneering' as for 'valuable.'

There is a vast scattering of judgments. Nothing Hall did was so excellent but that some psychologist was quite disgusted with it and nothing as you observe from the table so relatively poor but that many ranked it of highest value. Surely psychologists need psychologizing. I was quite prepared for the diversity of estimates. I have been for a good many years, as a teacher of logic, noting, with my students, the readiness with which we human beings form judgments,

the relation between certainty and the accuracy and reliability of those notions we carry about with us concerning certain objectively determinable facts of experience, as Cattell did years ago, like the placement of apple seeds or the anatomy and habits of familiar animals. There is, in the long run, a zero correlation between certainty and accuracy. About one tenth of the number in any group are timid souls and express doubts concerning their opinions. My 165 respondents hit about that fraction of uncertainty. In religion and politics the certainties run particularly high on a modicum of evidence. There is a tendency to 'rationalize' any sort of an opinion. My psychological friends are not immune. One of them claims that Hall could not have been a great psychologist nor his works original since he (the respondent) knows so little about them. Greater than all the brainstorms of conviction are those that center round dominant personalities. One hundred and six students of sociology whom I tested during the last Woodrow Wilson campaign ranked that political leader all the way from the worst possible statesman to the greatest one of all time; only five of the number could mention 4 of the 14 points, although the campaign was rife with the question of their success or failure. Not having had the pleasure of having many of the members of this association under my tutelage to teach them the art of forming sustained and balanced judgments, I was rather fearful of quite a medley. If a dog or a horse had to await a majority verdict of us human beings as to how he gets up from a lying position before he acts, he would never arise. If Hall had to assume a rôle corresponding to every estimate we psychologists entertain of him, he would be the world's greatest contortionist. He was a master of style, and his writing was, as another phrases it, 'impossibly bad'; he was profound and superficial; he was dogmatic, but gentle and 'sat at the feet of truth'; and so on through a long list. That is credible, for a human being may be full of changing moods and tempers. It is different, however, with a piece of work that is done and bound in boards. The product should be in duty bound to observe the logical law of identity. Not so. Two Deans of

Schools of Education and several other persons praise 'Adolescence' as a "major contribution to genetic psychology," "a marked contribution—the best that has been written in that field"; while others depreciate its worth, one of them designating it "a highly colored account that as frequently obfuscates as it clarifies this highly important life period." One person declares him "a negative force in experimental psychology" and others chime in, while another member of the same institution writes: "The chief contributions of G. Stanley Hall seems to me to be his true perspective of real experimental research in psychology." In the opinion of one of the best seasoned of our psychologists, "He has stressed the importance and dignity of sex more sanely than Freud and so more usefully," while another student, whose contributions in at least one field are authoritative, remarks, "He has not the slightest conception of what an exact scientific method consists in—what, in fact, one could predict of any one who swallows whole the Freudian mythology." And so the parrying in a dual combat goes merrily on. Surely we psychologists are fearfully and wonderfully made.

The relative importance of the problems and fields in which Hall has worked are indicated in the first two columns of the table and the topics are arranged as nearly as possible in the order of their estimated value. The numbers represent simply comparative rating of topics computed from a weighted scale of increase from the column marked 'negligible' taken as zero. It is worth noting that there is not much difference between the estimates of Clark men as compared with others when viewed either with respect to comparative value of contributions or from the standpoint of the ideal significance of the several items, thus proving that the opinions expressed are largely irrespective of discipleship. The only very marked discord is concerning 'Morale,' which Clark men place highest in value while others rate it two thirds of the way down the scale.

A catalogue of the qualities that mark the personality of Hall would be long and fascinating to contemplate. I shall snatch at random several phrases and simple sentences from

as many different papers that can blend into the outlines of the hasty sketch we are trying to draw: "I marvel at his encyclopedic scholarship that makes his publications such a mine of information." "His writings are wonderful for their scope, tolerance, and constructive criticism, and I note with pride the absence of mere negative fault-finding." "He read and took notes enough for a thousand men." "His insatiable curiosity and vigor of personality cleared the way for all of us." "He was notable because of his ability to see things, ideas, and situations in scale." "His thinking was free from all fears, tabus and authority-attachment, and as a consequence much of my dogmatism and many of my prejudices were destroyed." "I consider Hall an insurgent who did a great deal to make the American public more tolerant." "I admire Hall for not caring a fig for scientific orthodoxy." "He was one who stood on his own legs all the time." "To such as could be led Hall was a veritable Moses." "I marvel at his wonderful facility." "This zeal, zest, and vivacity of his classroom activity and the tremendous though spontaneous effort with which he worked shall remain with me as a lasting, definite, and inspiring memory." "His great service was as a catalytic agent working on the minds of other people." "He was a socratic who lived to midwife young minds and bring their children to point. An institution rather than a man."

The picture is by no means complete without a hint of the rich variety of color and even contrasts that played through this most interesting and picturesque character. When you were asked to be frank and fearless in your criticisms you accepted the invitation. One respondent after a fairly appreciative account of Hall's life and work added some vigorous criticism, and then came the postscript, "A jackal howling at a lion." It occurred to your scribe that when the king of the psychological menagerie strode across the spaces, the zoo was quite eloquent with sounds all the way from the love notes of the cooing dove and the chatter of the playful monkey to the barking of the wolf and the growling of the bear. I shall give a few samples,—again in keeping

with the proprieties. Hall would enjoy it most genuinely. I have never heard from him a heartier laugh than when recounting to a small group of his friends the long list of the signs of degeneration that alienists had discovered in his anatomy. So here are a few snapshots: "Uncritical." "Imperfect methodology." "Rather wild collecting of analogies." "Poor judge of the value of his own ideas." "Pathetic incapacity to criticize his own ideas." "Overgrown adolescent." "Not even a pioneer—his thoughts never went anywhere." "Too great toleration and catholicity." "Vague and inexact." "Turned away from the study of mind to the study of life as lived; values have no place in psychology." "Scissors and paste methods." "He possessed all the traits of genius save one—originality and creative imagination." "Inconsistent." "Could not distinguish between fact and interpretations of fact." "Made disciples rather than problem-solvers." "Unwholesome influence on his students." "Devoid of a sense of responsibility and consistency." "Unable to modify his generalizations to fit the facts." "Mystical." "Dogmatic." "Introduced sentimentalism to an extent that clouded clear thinking." "His work sloppy and ill digested." "A vivid person of wide and on the whole superficial interests." "Had the delight of the faker and the magician in astonishing and even shocking and bewildering suggestible companies and groups to which he happened to be speaking." There are more, but enough. Many who have recorded these oddities recognize them as the off-side of marks of strength. Hall was conscious of these frailties, but he succeeded, with his versatility and fine sense of humor, in laughing away more foolishness in himself than the prim and prudent ever know they possess. One student quoted above remarks, "I have heard several humorous stories *re* Dr. Hall as President of Clark. He must have thought that a huge joke. One can as easily think of C. W. Eliot as an attorney trying a petty case in a Juvenile Court as Dr. Hall 'presidenting' at one of our modern universities."

As I have tried to put my ear and heart next to the notes

you have struck in this symphony of valuation with its profound harmonies and its Wagnerian discords there are some central motifs that need rehearsing.

1. Hall is in the first place an *emancipated personality.* Few there be who attain deliverance. We earth-creatures have been only for a little moment or two, measured in terms of the earth drama, attaining some doubtful and dearly bought successes in pulling ourselves away from the enslaving contact with things and from our animal needs and passions so that we can differentiate a few clear ideas and live by them. Man has had to struggle and fight his way to every inch of victory over the mere demands of his primitive nature. I like to contemplate the 'Adam' of Rodin. There he rises, that strong figure, towards an erect posture, that mighty child of world forces with strength in every sinew of his powerful frame and his earnest features not quite turned upward as yet away from earthliness but beginning to clear themselves with the radiance of an idea. Contrast with 'Adam' the 'Balzac' by this same master sculptor,—his serene and steady features turned upward, this artist of the spirit who could portray in beauty with his pen the triumphing and triumphant life of mankind on the earth from which he has arisen. Every great soul must traverse the wide spaces from Adam to Balzac. One reads in the 'Confessions,' of the New England lad, full of vivacity and 'insatiable curiosity,' pulling, tearing, bumping, and fighting his way out of the provincialisms and conventions of his early surroundings, towards greater contacts and higher freedoms. Through those long years of experimentation with life and its problems, meeting men and movements at home and abroad, he finally attained unto such a world citizenship as few achieve.

2. A second theme closely related to the first is that Hall had by nature, or had discovered, the secret of perpetual growth. He was *persistently youthful.* There are at least three dead-lines that the elect of earth must cross after passing the period of infancy. The first of these is from thinghood to thoughthood,—not only to cross the line but to dwell beyond it, joyously and powerfully, in a world of ideas as in

a temple of truth. Deliverance of that sort makes the true scientist and the genuine philosopher. The second dead-line is from thoughthood into a world of values. One who crosses this line can never be smothered under the trappings of his trade in science, cannot be a mere systematizer nor an architect of systems, cannot lose his vision. He gains what Plato was pleased to call 'a birth in beauty.' Hall crossed this dead-line and became one of the world's humanists. The third dead-line is that of approaching age with its slower metabolisms and sinister forebodings. Those few who safely cross this dead-line of aging, have a chance of a new lease of life, like a Tolstoi and a Browning, a new releasing of energies in the rejuvenescence. Hall swept away this boundary and lived with increasing buoyancy.

It is to his credit and our gain that he did the rare thing of incorporating all these levels of animality and higher personality in the same individual. There is a way with men of turning their backs on the concrete facts of experience when once they gain a birth into thoughthood. They become mere dreamers, or old-fashioned philosophers with their feet off the earth. The worst offenders against life, as things go here below, are those who become emancipated into a world of meanings. They fly away into some abstract empyrean of spiritual values and become saints, or futurists, or dwellers in a seventh heaven of abstract values. Hall incorporated the whole range of life in one selfhood. He was even a healthy animal, full of human passions, good luck, that liked to play and work and make love; that could fight, making enemies and forgiving some of them, and with the spirit of a true sportsman letting the rest live; that had the instinct of ownership strong enough to prosper,—though guarding, perhaps, rather too jealously his scientific properties; with a native hunger of mind that ripened into a thirst for wisdom even though it gave way sometimes to a sheer love of acquisition. It is the part only of the rare genius to be facile and versatile in all the registers of the human scale.

3. The third theme, which is but a variant of the last two, is that Hall is the *philosopher-psychologist.* A former Clark

student whose experimental output is voluminous and significant writes, "I was also helped personally by his wonderful philosophy of life which culminated so remarkably in his 'Senescence.' His general attitude toward the world and men made it possible for me to live and work effectively at a time when I surely would have perished without it." Hall lived in a diverse and growing world but one that was constantly striving for integration. These words from one who worked along with the President of Clark for some years will illustrate this truth:

> I am pretty well set in the field of experimental psychology, and Hall's teaching and writing has been irrelevant to my field of competence. . . . Hall told his students in those days: "Build the top of the mountain first." And I, as a more matter-of-fact person, told them to start at the bottom. But I also felt that there were the two ways of working, and that it was a jolly good thing for the students to get both, and later, when they came to specialize, either. Hall was always bringing a broader perspective to my problems, and it was a delight to talk to him about them. But you see he had a sort of positive-negative relation to me, in that he took care of one aspect of the mental universe which needed to be taken care of and relieved me of it.
>
> Hall himself always said to me that the great thing in psychology was the 'synthetic' approach, and he encouraged me to be synthetic. I have never been able to define the term for him, but I have always intuited it to mean that psychology should not seek to prescribe limits for itself, but should understand the human being by drawing together all the various manifestations of human nature which make up, I should say, by far the larger part of contemporary knowledge. It was the exhibition of this conception which seems to me to be Hall's greatest contribution to psychology.

Psychologists will naturally cleave asunder according to their admirations or depreciations of this philosopher-scientist who wishes to build the top of the mountain first. The factual- and practical-minded person cannot understand him—at least why he does it. A belated auditor came into the midst of David Starr Jordan's one-time famous lecture on the Ascent of the Matterhorn just at the critical moments of the description of privation, cold, and nearly fatal acci-

dents. The bewildered latecomer soon leaned over and asked his neighbor in an audible whisper, "what the devil were they doing up there," and nearly broke up the meeting. Whether one likes personally the ozone and the sweep of vision or not is a matter of temper and temperament. The peculiarity in question would explain much. Did Hall have a prodigious memory for facts, titles of books and articles, and names of workers? Should one 'marvel at his assimilative erudition' and wonder at his 'encyclopedic knowledge?' He probably just saw things in perspective. "Could there be," one admirer inquires somewhat doubtfully, "a third dimensional depth when there is such a two-dimensional sweep?" He saw. The view he got or glimpsed of a developing order of life was so vast and interesting that his thoughts rushed and struggled for expression. "I was both amused and awed," writes one of his students, "by his vocabulary. I laughed at and venerated him almost in the same breath because of it." His thoughts came in such volume of suggestion, writes another, that "it seemed as if had he had three sets of vocal organs instead of one, they could not have given expression to his thought." "He was interested in those aspects of human behavior that are prolonged and not momentary."

4. The fourth theme of our symphony, important as it is in the ensemble, needs but the slightest mention. Hall is the *poet-psychologist.* Several persons have called attention to this trait with approval and appreciation. Others brand it mysticism, romanticism that ends in romancing, and the like. "Hall's humanistic tendencies," says one, "are distasteful to me." "I think," remarks another, "that he is much more of a clear thinking literary man than an investigator and scientist." A mature psychologist who studied awhile at Clark says, "He viewed ideas with a sort of esthetic appreciation and he gave them back to his students in the same spirit. . . . As a discoverer of interests and values he was a master mind. I have never been able to agree with T——— in the position that science deals with facts, not values. Hence I cannot see that Hall's place among scientists should

be affected by this estimate." This key-concept to right understanding is best described by the incomparably fine and sweet-spirited Sanford:[1] "Dr. Hall was a typical Romantiker. . . . To him nothing human was alien. It was as a prophet and pioneer in these fields that he must be judged. To attempt to appraise him by other standards misses the essential meaning and purpose of his life." It may be that the life and work of Hall is prophetic of the day when the world of values as truly as the sphere of facts and principles will be the subject-matter of science. Surely his later interests in the emotions had their drive partly from this conviction.

5. The last point that may receive mention is that Hall's *values center in persons.* He was himself, first and foremost, a radiating and vitalizing personality. He was 'a vital contact,' 'you could talk with him.' "He prevented more human shipwrecks than any teacher I have ever known," writes one student, "and always with a delicacy and respect for private affairs in his attitude." "He was always setting them (the students) on their own feet." "He did not teach me *how* to work or think or *what* to think, but he gave me the conviction and courage that one must dare to do his own thinking, that intellectual salvation grounds on that principle."

To record the fine impressionistic pictures my respondents have given of their contacts with Hall in the capacity of pupil and teacher would require a separate paper. I shall quote from but one more, which is representative:

> His great genius was at its best when he was taking young men of mediocre ability or even geniuses and imbuing them with a scientific point of view and spirit of research which they could never forget. I have never ceased to wonder at the marvelous results which he achieved in this respect. . . . His example and inspiration has not only enabled me to continue my scientific investigations but largely determined the way in which this work was done. It has made me turn to research at the times when I should really devote my time to recreation and rest because I would rather be able to make a few contributions by working overtime than to rest or enjoy myself in the ordinary way. Since my

[1] E. C. Sanford in *Amer. J. Psychol.*, 35, pp. 313 ff.

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stay at Clark, whenever I have seen G. Stanley Hall his first question was always, "What are you now working at, and thinking about? What problems or research lie nearest your heart?" My answer was always matched with an equally free answer from him laying bare his most sacred new problems and insights. It is this spirit and attitude which all Clark men acquired from G. Stanley Hall that tends to make us devote every spare hour we have or can steal to research in a science which he made so all-alluring and inclusive.

Another outstanding influence which worked wonders on all his students was his wonderful tolerance for the views and works of other scientists and psychologists. I never in my three years' stay at Clark heard him belittle any piece of experimental work. It was all important and interesting, always.

It has been said that the value of a great man is to lift the level of all men. We shall cherish the memory of Granville Stanley Hall not more for his sake than for ours. If by this season of contemplation of the fine personality and the significant achievement of this earnest student and master teacher we are bound a little closer in the helpful fellowship that he sought to bring about through this Association, if we glimpse afresh the vastness and richness of the field in which we work, if we gain a bit of new perspective, if we are stirred within by the urge of possible achievement until we are more faithful to the smaller tasks and find strength to attempt the nearly impossible, it will have been good that we have met together.

PSYCHOLOGICAL OBJECTIVISM

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I. Types of Objectivism

There seems to be a tendency in current psychological discussions to assume that there is but one, or perhaps a pair, and at most a trinity of genuine behaviorists, and further that behaviorism is something brand new—points of view that are probably radically unsound.

Apart from the general principle that ideas or systems of ideas never spring suddenly into being, like Pallas from the cleft skull of Zeus, a survey of the history of psychology forces the unbiased student to the conviction that the roots of behaviorism are as primitive as those of mentalism, both having their common origin in Aristotle. Thinkers worthy of the name of behaviorists have not been uncommon in the history of psychology and a number of contemporary psychologists offer systems equally meriting the title of behaviorism. These systems differ, to be sure, in the manner in which historical elements of objectivism are synthesized and in the relative importance assigned to such elements, but all draw from common sources, and nothing justifies the selection of any one of them as the only true and bona fide behaviorism.

Behaviorism would seem to include any system in which the effort is made to substitute objective data and the universal method of science, direct observation, for subjective data and the special method of introspection, and if it be said that the objective data proposed are not always behavior, yet they may be conceived of as records, residua, identical aspects, or correlates of behavior involving a strictly behavioristic methodology. Thus one behaviorist treats even introspection, the *bête noire* of the orthodox behaviorist, as a form of behavior. The data of heredity, the physiological

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residua of Maudsley, Prince, and Semon, and the morphological aspects of the organism or of any special parts of the organism, *e.g.* the cranium, may be regarded as records of behavior of the organism, and their employment in the elaboration of objective psychologies of varying merit plainly fall under the head of behaviorism defined in the most general sense of the word. Thus even phrenology is a kind of abortive behaviorism, based on an illusory correlation of behavior and structure. Its data were objective, but meaningless through the absence of statistical treatment. Present attempts to determine the morphological aspects of intelligence are equally behavioristic, for if intelligence is defined as capacity for adjustment, the morphological aspects are simply objective signs of behavior patterns.

Much of the data of heredity and evolution employed by the genetic psychologists falls in the same category. Biological uniformities, as well as variations, are records of phylogenetic adjustments or racial behavior, and are as objective as the past reactions which they witness. Their study is equivalent to an objective though indirect study of behavior itself; indeed it is the only positive method in certain cases. It constitutes, so to speak, the paleontology of behaviorism. This appears to be true whether one is a Lamarckian or a Darwinian in biology, and whether one assumes a purposive element as the criterion of behavior, or, on the contrary, regards it as a purely mechanical phenomenon with the only qualification of being the expression of organisms as a whole. In the former event, McDougall (**36 a**) has shown how difficult it is to decide just what is behavior and what is not. The apparently purposive elements appear in the most remote physiological processes of adult, embryo, or even germ cell. From a mechanistic viewpoint there is no good reason for refusing the name of behavior to any reaction of the organism as a whole in any stage of development, even the germ. A variation or uniformity is certainly, therefore, a record—not perhaps of any definite bit of past phylogenetic behavior, but of behavior sequences of indefinite extent. There is therefore no logical

fallacy involved in calling genetic psychology behavioristic. Similar considerations would lead us to recognize behaviorism in other fields not always explicitly associated with that term. Indeed, as we shall see, wherever the subject-matter of the psychologist is inaccessible to introspection, as in the case of subconscious or social phenomena, he is ultimately forced to a methodological behaviorism which tends to become an absolute behaviorism in so far as the field is developed in the interest of applications or control, rather than of contemplation or understanding. Thus social psychology is evolving from a theoretical discipline of inferences based on introspective analysis of individual minds toward an experimental and statistical treatment of group reactions or reactions in groups (**1, 20**). The subjective element is neglected in the interest of the objective or immediate object of possible prediction and control, and the way is opened to a complex mechanics of society which forgets, denies, or uses uncritically (**53 a**), the consciousness under the auspices of which it developed. It follows that in addition to the so-called orthodox behaviorism of current discussion, an impartial spectator of the present conflict of systems would recognize as forms of behaviorism, any or all of the following. He would include the comprehensive schemes of Thorndike, Yerkes, Hobhouse, and McDougall, which in spite of profound differences in the interpretation of data, present resemblances in scope, methods, and ideals of investigation. The work of all is marked by

1. The combination of psychology with physiology,
2. The employment of a genetic background as extensive as the biological sciences permit and growing *pari passu* with the development of the latter,
3. The retention of mental phenomena as genuine data of psychology,
4. The definition at least implicitly of psychology as the science of behavior in the broadest sense of the word. McDougall (**36 b**), indeed, explicitly defines psychology as 'the positive science of the behavior of living things,' a definition which as he truly says returns to Aristotle. Hobhouse (**24 a**) also assumes a broad behavioristic position, and although

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he does not offer a positive definition as does McDougall, he tells us that "in the inquiry we shall have to do not so much with the inner nature of mind as with its functions, not so much with what mind is felt to be by its possessor, as with its operations as apparent to the onlooker." Hobhouse is interested in the double task of tracing first, the outlines of psychogenesis, and second, the rôle of mind as an adaptive factor in organic evolution. He relies upon objective data attained by the general methods of science. He believes in the existence of psychic energy, and that one of the principal problems of psychology is its detection and measurement (**55 a**), a further indication of a resolution to adhere in all cases to the objective method in dealing with psychological topics.

Yerkes (**55 b**) and Thorndike (**48 a**) equally represent behaviorism of this comprehensive type, as is indicated by the tenor of their entire work, and particularly in their illuminating reviews of the works of professed behaviorists. Yerkes (**55 b**) by his own admission, started as a behaviorist of the Watsonian type, considering introspection a futile method, and attention to the subjective as unfavorable to natural sciences. In 1917 he still proclaims himself a behaviorist, but urges a more comprehensive standpoint in many respects like that of Hobhouse. He likewise warns against the acceptance of any kind of behaviorism, as the only final and acceptable type. Thorndike, in an admirable critique of the theories and methods of behaviorism declares for absolute freedom in psychological methods, and while he retains subjective phenomena as part of the subject-matter of psychology, he feels that "students of the subjective are no longer justified in regarding their work as that of the psychological *élite*, untainted by physiology, sociology, psychiatry, and education."

The authors whom we have grouped together as representatives of this comprehensive type of behaviorism, which is a specifically Anglo-American movement, perhaps differ most widely in their implied or expressed views as to the presence of a purposive element in behavior. This is stressed by Hobhouse and McDougall (**36 c**) and particularly insisted upon by the latter who finds it at every level of behavior in

man, higher and lower animals, and even in phenomena of a different order, *e.g.* in embryonic development, and the physiological changes of animal and vegetable growth and locomotion. All of these latter activities are at least analogous to what we all recognize as behavior in so far as they defy a mechanistic explanation and reveal purpose. Hobhouse assumes as a guiding principle that mental evolution is orthogenic or aristogenetic, that is, evolution upward, implying therefore the presence of a directive factor of some kind. But whereas for Hobhouse the principle of autonomy is inherent or imminent in the behavior itself, *i.e.* seems to consist in the control exerted on any stage of the behavior sequence by the whole past history of the organism's behavior, for McDougall there appears to be some kind of external teleology involved. Indeed on this question, Hobhouse and McDougall seem to represent on the psychological plane the contrast offered in physiology by the respective views of Haldane (**22**) and Driesch (**19**). But whatever the difference of opinion within this group and their followers, as to the presence and nature of purpose as a relevant element in behavior, there is a striking agreement as to freedom in psychological method and the desirability of utilizing objective data and methods in psychological research whenever possible.

A second and less comprehensive type of contemporary behaviorism is the objective psychology or reflexology of Bechterew (**5**). "This," says Bechterew, "bears little resemblance to what has usually been called psychology." There is no place in it for the subjective phenomena which are generally called states of consciousness. Introspection, or auto-observation as Bechterew calls it, is inadequate either for complete self knowledge or for knowledge of others.

Psychology is concerned with more than consciousness, a point stressed by Henry Maudsley (**37 a**) over fifty years ago in his insistence that consciousness and mind are not coextensive, and that mind included a far wider range of phenomena. Psychology for Bechterew is concerned primarily with movements, voluntary, expressive, instinctive,

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respiratory, circulatory, etc., so that it is the science of neuropsychic life in general and not only of its conscious manifestations. Psychic life is never purely subjective, although the subjective aspect, *e.g.* sensation, exists as the symbol of variations of the organism. Sensations therefore merit attention but must be studied objectively. In any case, introspection is useless for objective psychology, since

1. No objective indication of the conscious or unconscious nature of a given process exists, and
2. Introspective data do not explain (or even reveal) the mechanism of processes.

The object of psychology is thus a complete history of psychoneural events in the life of an organism, and since every neuropsychic act is reducible to a modifiable or unmodifiable reflex, it follows that psychology might better be called reflexology, and treated as a section of general biology. It will be seen that in adopting the double-aspect theory, the author assumes a more consistent philosophical position than do most radical behaviorists, who often appear to deny facts in the effort to attain imaginary universalism in the application of an excellent methodology.

Closely allied to the views of Bechterew are those of a group of French and German physiologists including Bethe, Beer, Ziegler, Von Uexkuel, and Nuel, whose doctrines are of interest in so far as they have been applied to the study and interpretation of human behavior. This group, reacting against the anthropomorphism of the older anecdotal school of animal psychology, returns to the standpoint of Descartes, according to which animals are mere machines devoid of consciousness, whose functioning, however, is subject to the law of the conservation of energy, rendering complete analysis by objective methods possible. For this analysis a new objectivating nomenclature is desirable and has resulted in the terminology of receptions, kineses, antiklises, etc. (Uexkuel, Nuel), cleronomic and embiontic reactions (Ziegler), which irritates Watson (**53 b**) and Bohn (**9 a**). Indeed, Uexkuel declares that for the biologist there should be no animal psychology (**9 b**). Bohn points out how one of their number

denies sensations to animals, but speaks of a faculty of forming embiontic or acquired associations, or in other words, 'reason' (**9 c**). We are thus carried back to an unconscious purposive element in behavior, analogous to the metaphysical postulates of Schopenhauer and Eduard von Hartmann. Most of the representatives of this school have paid little attention to the application of their views in human psychology, but have carried the doctrine to the extreme in dealing with lower organisms, as in Bethe's (**7**) contention that ants and bees are mere reflex machines.

Nuel, however, applied the ideas of the school to the human animal, maintaining the possibility of a complete description of man's reactions, including sensory reactions (receptions) in mechanistic terms. No place is left in science for the study of consciousness and the very existence of a psychology is questioned.

In his book on vision, Nuel (**44 a**) attempts to give a complete description in objective terms of a typical sensory process as a model for other studies of a similar kind, the hope being expressed that by an accumulation of such studies, a complete scientific account of the organism may be attained which will dispense with any need for a psychology. Sensations are not denied but are treated as neural changes, or as conscious experiences dismissed as irrelevant epiphenomena, analogous to the shadows of material bodies. Conscious states possess no causal efficiency and at most may serve as indications of physiological processes to be looked for and investigated. They are never to be investigated in themselves. The problem of the physiologist who is restating the vain and falsely conceived problems of the psychologist is, 'to investigate the physiological processes of which states of consciousness are the psychic epiphenomena.' Introspection, the use of the *sens intime* will have no place in this investigation which must be by purely objective methods.

A fourth group constituting a school of pure behaviorism is that headed by Jacques Loeb and his brilliant French disciple, Jacques Bohn (**9**). They profess to trace their theories of animal behavior to the work of Lamarck, and lay

great stress on the rôle of the environment as the source of stimuli forcing responses upon the organisms, such forced movements being known as tropisms which suffice to explain the great mass of responses at every level of organic organization. They offer a completely mechanistic interpretation of animal behavior in terms of tropisms, differential sensitivity, and association, investigated by purely objective methods as diverse as physicochemical analysis and field observation of animals in their native habitats. Differential sensitivity and associative memory are not necessarily consciousness, and where they are, as in man and probably in the higher animals, consciousness is nevertheless an epiphenomenon and investigation is to be confined to the objective phenomenon.

Behavior is wholly mechanical and Loeb boldly uses the term to include chemical changes of organic molecules, and writes of the principles of colloid behavior (**34**). The students of tropisms like the preceding school, devote little attention to human behavior, though Loeb touches upon the subject at several points. He plainly assumes that much of the behavior of higher animals including man is tropismic rather than due to instinct, a term which, follow ng Lamarck, he rejects as meaningless. He playfully suggests that even such a complex phenomenon as human courtship may be largely explained in tropismic terms (**33**). Since colloidal changes are interpreted as a form of behavior, it is possible that by experimenting with artificial colloids this school may yet arrive at a kind of soap bubble psychology in which psychic events will be interpreted in terms of differential surface tensions.

Our survey of existent types of behaviorism is by no means exhaustive either as to number or content, but enough has been said to indicate that several contemporary systems of thought on psychological matters merit the title of behaviorism or rather objectivism, which is a better term. All of these movements show a more or less critical attempt to return to the naïve objectivism which characterized western thought at the beginnings of psychology in ancient Greece,

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and to which we shall refer in the second section of this paper. All emphasize in varying measure, and with a variety of stress, certain demands which have arisen at various times during the historical development of psychology from a philosophical discipline to a form of positive science. Among these demands which are the common demands of natural sciences are:

(1) A subject-matter of an objective nature,
(2) susceptible of exact measurement and quantitative expression,
(3) by means of public observation open to all to repeat at will,
(4) and which will make psychology a universal science by rendering possible the psychological study of animals, infants, subnormal and insane persons, as well as unconscious phenomena. In short, all processes of psychological import which are closed to introspection. Parallel with, and contributing to the formulation of these demands we shall find an intensive and long continued critique of introspection in which most of the current objections are repeatedly urged.

We shall now turn to a historical investigation of these demands, many of which have found recurrent expression in the history of psychology, while all have been voiced at some time or other before the existent syntheses of Watson and the many other contemporary behaviorists appeared. Objectivism as a general attitude in psychology can only be appreciated in the light of the historical causes leading up to it. In the course of such a study it may appear that reactions of thought in a given direction have often been a potent source of movements in the opposite direction, and that emotional motives have reënforced logical demands, while in turn logical demands have created emotional motives for systematic developments.

2. Historical Sources of Objectivism

The history of psychology as an organized body of knowledge begins with Aristotle, but as the latter introduced his views only after a criticism of his predecessors, so we also must go to those same predecessors in order to understand the peculiar doctrine of Aristotle which was to prove the common ultimate source of modern behaviorism and mentalism. "The

character of ancient philosophy," says Ludwig Noiré (**42 a**), "was naïvely objective, and the last thing that man discovers is his own ego."

Races like individuals begin with what Baldwin (**3, 4**) has described as the projective stage of thought, in which the dualism of the subjective and objective, self-conscious mind and the external world, has not yet been attained. The Greeks were in this stage when we first meet them in Homer and never fully escaped from it even in the persons of their most brilliant philosophers. The prephilosophical animism of the Homeric period, like most primitive animism, is plainly a dualism of the objective, soul and body being simply a matter of different degrees of density. The former is just a vapor-like duplicate of the latter. In the presocratic philosophy such apparent dualism as seems to exist in Anaxagoras, Empedocles, and Heraclitus, is again a dualism of objective elements, though a dualism of a more critical nature than that of animism. The *nous* (mind or intelligence) of Anaxagoras is, according to Lewes (**31 a**), the abstract form of the vital forces in organized beings, and as Hegel remarks has nothing in common with the conception of mind as subject. Love and Hate, invoked by Empedocles as explanatory principles of the cosmos, are equally objective and are more analogous to such modern conceptions as gravitation or magnetism than to the subjective affections which we now mean by the terms. And the unchanging Law of Change which Heraclitus found in a universe where 'everything flows' (*Panta rhei*), is even more plainly objective than the principles of Anaxagoras and Empedocles. All are quite clearly dualisms of an objective nature, and all contribute to the dualism of Aristotle, which while equally objective is of such a subtle nature that few were able to grasp it, with the result that subsequent thinkers, failing to comprehend it, either fell back into a form of animism or drifted unconsciously in the direction of the dualism of subject and object first clearly defined by Descartes. Before approaching Aristotle, however, we must touch upon the psychology of the Sophists, Socrates, and Plato, in whom some profess to

find traces of a subjective dualism. "Man is the measure of the Universe," said the Sophist, but it is at least possible that he used man in the generic sense, as a species or political animal as Aristotle later called him, such a thought being most familiar to a people emerging from a primitive level of social organization. Socrates' reply was, in substance, that the measurement of the universe was unimportant and that the essential thing was to measure man. But it is significant that his measurement of man consisted in the creation of a social philosophy, which in so far as it involved psychology, attempted to evoke a psychology of the behavioristic type, the emphasis being on principles of predicting and controlling conduct in the interest of society. Plato, in whom the Socratic spirit found full expression, devotes his efforts to the construction of an ideal State, and when he sketches an individual psychology it is as a didactic fiction in which the structure of the state is projected into the individual. The three classes of the ideal Republic, philosophers, warriors, and workers, receive functional analogies in the life of the individual. We thus seem to arrive at the threefold aspect of mind stressed by modern psychology, but what we have in reality is merely a recognition of the three levels of activity or systems of control within the individual organism, and this as a didactic fiction for political purposes rather than as an attempt at psychology *qua* psychology. The dualism of the Sophists, Socrates, and Plato is thus of an experimental nature, as Baldwin says, and cannot be said to advance beyond that of their predecessors, so that Aristotle appears in an atmosphere which is still that of pure objectivism.

Aristotle's (**10 a**) psychology like everything else that he wrote can only be understood in the light of his philosophy. He approaches psychology from a general metaphysical standpoint, according to which all things are arranged on a scale extending from pure matter to pure form. In a given evolutional sequence (and such sequences occur everywhere) each stage is form to the preceding and matter to the succeeding stage, and this is true whether we are dealing with inanimate objects or the highest production of organic nature.

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Evolution consists in a greater and greater realization of form or actuality. Hence, when Aristotle deals with the psyche, which means the principle of life (**46 a**) rather than mind, he treats it as the form or actuality of the organisms in which it appears. But the form or actuality of the organism resides in its activity as being the final end and realization of the organism, so that Aristotle starts as a functionalist by the very nature of his metaphysical principles. "Aristotle illustrates the relation by the remark that if the whole body was one vast eye, seeing would be its soul" (**46 b**). But, since the body is a group of organs, the soul must consist of a sum of vital functions which collectively constitute the entelechy or form which realizes itself in the motions and changes of the organic body.

Windelband (**54 a**) shows with what logical consistency Aristotle elaborates and applies his metaphysical distinction in analyzing the psychic life. This is built up as it were in successive grades or strata, each of which in turn represents matter for the higher. The first form of organic life is the vegetable soul (*threptikon*) which forms the mechanical and chemical changes to the purposive functions of assimilation and propagation. The soul of plants is restricted to this purely physiological function of a vital force. To this is added in the whole animal kingdom the animal soul, whose constitutive characteristics are spontaneous motion in space, and sensation (p. 149). Vegetative and animal souls form in man the matter for the realization of the form peculiar to him—the reason (*nous dianoeisthoi*) p. 151. But this is plainly continuous with the rest of psychical evolution in spite of the subjective interpretation of later Christian thinkers. Indeed, both Alexander of Aphrodisias and Averrhoes give a naturalistic interpretation, making reason an objective principle pertaining to God or the Universe rather than to the individual (**46 c**).

Aristotle also distinguished between a first entelechy equivalent to the sum of capacities for the exercise of vital functions and a second entelechy representing those functions in operation (**10 b**). In the former, he anticipates the con-

ception of mental structure advanced by certain English psychologists, *e.g.* Mitchell, and notably McDougall (**36 d**), who defines the structure of mind as 'the sum of the potentialities of its various functions,' or as a sum of mental dispositions not structurally arranged but functionally connected, which lie back of the mind in its actual functioning, or enable functions to exist. Finally, Aristotle's account of sensations in general and of the working of the special senses is consistently in terms of function. The sense-organs are simply receptors of the forms of activities of objects, and sensation is this form or activity impressed upon the percipient organism. Again, there is no hint of consciousness in its post-cartesian sense. The fact of the matter is that psychology is for Aristotle, a division of physics or biology, and that his doctrine of body and mind, "does not readily fall into line with any of the typical theories of our time" (**46 d**). Theories of mind-body relationship, as well as of subject and object, are for Aristotle's view irrelevant. Body and mind are one thing, as matter and form of a Greek vase are one, and the object mind-body is one among a universe of essentially similar objects, different only in the degree of their development.

Aristotle's conception was too subtle for his contemporaries, and indeed modern biologists such as Haldane, are just beginning to develop the implications involved in the concept of the entelechy. Even Driesch (**19 a**), who is classed as a vitalist, points out that the entelechy is not something psychical as most vitalists have assumed, but rather something that is non-physicochemical. The contrary of mechanical is merely non-mechanical, not psychical, and in this distinction he seems to approach closely the true sense of the Aristotelian term which he has borrowed.

The successors of Aristotle, however, did not grasp the distinction and diverged along two lines according to their professional training, and practical purposes. One group, of an empirical turn of mind, determined by the imperfect medical and biological studies and observation then possible, returned to what was substantially a form of ancient animism. The entelechy was transformed into a material vital force,

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the prototype of the archeus, animal spirits and other strange creations of medical mythology which infested biological studies until Descartes swept them away with his theory of universal mechanism in the material world.

Another group, impelled by ethical or theological motives, moved slowly in the direction of the modern subject-object dualism, but never got beyond ascribing it to the universe as a whole. Neoplatonists, the early church fathers, notably Augustine and a long line of scholastic philosophers, moved in this direction and, in defining objective nature as the thought or ideas of God, transformed the realism of Plato into an absolute idealism in which God becomes the Universal Subject. Thus Plotinus says space and time are in the soul, but as the soul is in essence identical with God, this amounts merely to saying that space and time, like things, are aspects of the subjective universal. None of these thinkers got beyond the logical or grammatical subject in treating of man. In conceiving the Universal Subject, however, they may be said to have prepared for the work of Descartes, just as at an earlier period Plato's analysis of the functions of the State preceded and suggested his attempt at a psychology of the individual.

The theoretical subject-object dualism was a naïve projection of the nature of the individual, but it was reserved to Descartes to bring it once more to earth and reëstablish it in its natural source, thus creating for the first time a conscious dichotomy in the individual about which all subsequent philosophies have moved in eccentric orbits. Descartes, generalizing consciousness from the host of the psychic functions involved in the ordinary use of the logical subject, was enabled to transform the latter into the psychological subject which it has been in all subsequent thought. In this he did not proceed differently from primitive man when he evolved such verbs of general action as the Latin '*ago*.' From beating, cutting, fighting, walking, etc. the primitive arrived at the general concept of acting (*agere*) and later again in Greek thought arrived at the conception of the functional ego, the entelechy or agent.

Similarly Descartes (**18 a**), wishing to divest himself of all preconceived notions in order to attain principles of certitude, found himself reduced to the bare statement, "Cogito, ergo sum," occasionally assuming the form "Dubito, ergo sum," but in any event assuring him of his own conscious existence. By certain theological reasonings, which we need not here discuss, he finally comes to accept the external world which he is conscious of, as a second form of reality. The dualism of subject and object is now complete. On the one side, we have consciousness immaterial and unextended (*substantia cogitans*), on the other hand, the external world whose essence is for the mathematical spirit of Descartes, extension, hence, *substantia* or *res extensa*. Descartes having established the distinction now turns by preference to the external world as matter for the application of scientific method. Perhaps he feared to apply his method to the analysis of the ego, in the light of the recent persecution of Galileo. It is known that he suppressed his 'Traité du Monde' (**30 a**) for this reason, and it is possible that he believed in a universal mechanistic explanation. Had he turned his powers in this direction, and thus guided the new mathematical sciences in psychological channels, it is possible, as Bergson (**6 a**) suggests, that we would now have "a psychology of which today we can form no idea, just as before Galileo no one could have imagined what our physics would be—a psychology which would be to our present psychology what our physics is to that of Aristotle."

Others, however, basing their opinion on certain passages in the 'Discourse on Method' (**18 b**), claim that Descartes felt analysis of consciousness to be unfruitful and that his interests were entirely in the field of mathematics and natural science. Certainly he did little to clarify or analyze the concept of consciousness except to locate it in the brain, while he applied his mathematical method to the entire material world. In clearly distinguishing consciousness from matter, Descartes rendered possible a psychology of a truly mentalist character for the first time. In his work in psychology and his celebrated theory of animal automatism he laid the foundations

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for a gradual return to objectivism in psychology, and is thus in some sense a precursor of behaviorism. In the course of physiological researches Descartes recognized and defined the reflex, as Huxley (**26 a**) and DuBois-Reymond (**38 a**) have pointed out. This of itself suffices to account for movements of men and animals, and since consciousness is unobservable, Descartes with strict logical consistency treated them as a class of extended objects capable of scientific analysis as such. Thus arose the doctrine that "brute animals are mere machines or automata, devoid not only of reason but of any kind of consciousness" (**26 b**). "What proof is there," says Huxley, paraphrasing the Cartesian Malebranche, "that brutes are other than a superior race of marionettes, which act without pleasure, cry without pain, desire nothing, know nothing, and only simulate intelligence as a bee simulates a mathematician?" Had Descartes had at his disposal that vast body of data accumulated by modern biological sciences, he would have been still more certain of his conclusion (**47 a**), and we have already seen how a large and influential school of modern biologists assert that animals are mere machines in almost the same terms employed by Descartes. It was inevitable that some one should deduce the extreme consequences of the doctrine of animal automata and apply it to man. If animals are mere machines, why should man be regarded as anything else but a machine of greater complexity, and susceptible to the same type of scientific analysis? This view (**51 a**), common to a group of French thinkers including Diderot and D'Holbach, was developed with great force by J. B. Lamettrie in his well-known 'L'homme machine' (1748). "While he praised Descartes for saying that an animal is a machine, he reproached him for not having dared to say the same of man. Not that Lamettrie denied the existence of feelings or thought in animals or man; such a paradox would seem to him absurd. He means that feeling, thought, consciousness, are all produced by the machine; the whole soul is explained by it, depends upon it, and in consequence disappears when it gets out of order or is decomposed" (**30 b**). He backs his opinions

with definite facts from physiology, pathology, and anatomy. He thus denies the existence of mental spontaneity and reduces consciousness to the rôle of epiphenomenon. It is the non-functional appearance of the operations of the living machine, but exercises no influence on those operations. This view, which has had numerous exponents ever since, leads logically to a behavioristic or purely objective psychology as soon as the latter is conceived as a possible science of prediction and control. For it is clear that this object may be pursued without reference to such epiphenomenal mental states and indeed that psychology by neglecting them will more closely conform to the economic organization of knowledge which is the essence of science according to certain empiricists (**28 a**).

The materialistic psychology expressed in so radical a form by Lamettrie, and accepted with varying degrees of reservation by most of the encyclopedists, underwent additional development at the hands of the ideologists, Cabanis, Destutt de Tracy, etc., after which it was, on the one hand, absorbed and transformed in the postivism of Auguste Comte, and, on the other hand, transported bodily into Germany where it appeared with an evolutionary setting in the writings of Vogt, Moleschott, and Buchner, during the middle nineteenth century. There it formed, and as further elaborated by Haeckel and the monist school continues to form, the middle-class intellect of modern Germany (**38 b**).

Returning to the ideologists, the immediate successors of the encyclopedists, the most notable is Pierre Cabanis (1757) who was in many respects far in advance of his time, so that we are just beginning to assimilate his viewpoint. Handicapped by an inadequate physiology and the absence of a well-defined conception of the genetic method, he nevertheless made every effort to define mind in terms of such objective factors as age, race, sex, temperament, climate, and neural constitution, and his analyses remain models in this direction. His work, therefore, remains one of the best extant in physiological psychology and he is justly regarded as the founder and creator of that science (**10 c, 38 c**).

Cabanis takes as his object of psychological analysis "the individual as a living totality of organs and functions. Any given mental event is then a function of this organism and not merely an activity of mind" (**10 d**). In studying functions, we must take account of the cumulative effects of embryonic development, morphology, neural constitution, environmental circumstances, and other equally objective factors. Only in such a way can we get at the persistent background of isolated functions which is the object of Cabanis' investigations. To summarize in Cabanis' own words from an early section of his famous work (**12 a**):

"*Les opérations de l'intelligence et de la volonté se trouveraient confondues à leur origine avec les autres mouvements vitaux: le principe des sciences morales, et par consequence ces sciences elles-mêmes, rentreraient dans le domaine de la physique; elles ne seraient plus qu'une branche de l'histoire naturelle de l'homme; l'art d'y verifier les observations, d'y tenter les experiences, et d'en tirer tous les resultats certains qu'elles peuvent fournir, ne differeraient en rien des moyens qui sont journellement employés avec la plus entière et la plus juste confiance dans les sciences pratiques dont la certitude est le moins contestée.*"

Thus Cabanis, like modern behaviorists, wishes to study the reactions of the organism as a whole by objective methods, without, however, neglecting consciousness. Not only did Cabanis create physiological psychology, but from his work, "arose the various departmental studies by which the concept of psychology was to be continuously enlarged, including the study of abnormal psychology, of national and ethnological psychology, of genetic psychology, and of social psychology" (**10 e**), his work in the latter field proving a particular stimulus to Comte.

Beyond this generally acknowledged influence, Cabanis' insistence on the importance of organic sensations, which he did not regard as clearly conscious, made him a precursor of Schopenhauer, and indirectly of the various modern psychologies of the unconscious. These lead by another road to the demand for an objective psychology, since unconscious psychical processes, if assumed to exist, obviously escape the

introspective methods of traditional psychology. Cabanis is thus once more the source of the modern demand for objective methods in psychology. In this connection we may remark in passing that Cabanis' friend and colleague, Destutt de Tracy, expressed the demand for an objective psychology by seeking materials in grammar, logic, and historical ethics, economics, and politics, thus helping to lay the foundations of social psychology. He also anticipated the James-Lange theory of emotions. Another friend of Cabanis', the great physiologist Bichat (**8 a**), argued that the apparatus of organic life are the sole seat of the passions, which do not affect the brain except in so far as it is involved in transmitting the influence of the passions to the muscles. Before turning to positivism and to its contributions to an objective psychology in the matter of criticism by Comte and construction by his disciples we must mention a German movement toward objectivism paralleling that inaugurated by Cabanis.

Herder (**38 d**), in an essay on 'Understanding and Sensation,' proposed to apply the descriptive physiology of Haller to the analysis of man as a mental and social being. All psychology must be physiological, and mind must be studied from its objective manifestations and records in the individual and society. This is an essentially behavioristic attitude and program, the object of which was a psychological history of mankind. Herder, like Cabanis, exerted a wide but often unrecognized influence on subsequent thought. The common mark of the period is a search for objective material and a subordination of consciousness.

We now come to positivism, which has exerted an incalculable influence on the progress of the exact sciences and which has perhaps aroused scientific ambitions in disciplines incapable of exact treatment. Its founder, Auguste Comte, announced himself as continuing and completing the work of Descartes. But his sympathies were socialistic, and he was deeply imbued with the idea of progress. He therefore deemed the idea of an isolated individual ego or consciousness both misleading and useless, such an ego even if existent being an unattainable object of study. We are to study mind

in its social manifestations in the interest of control, rather than individual consciousness by self-examination. The 'us' not the 'me' is the proper object of study (**30 c**). In so far as there is a study of the individual, mind is a part of general biology. Hence, Comte omits psychology in his classification of the sciences and indulges in a vigorous polemic against mentalism, in which he particularly criticizes the subjective method of introspection. In an early section of the first volume of his great work on the positive philosophy, Comte refers to the traditional psychology of the school as an "illusory psychology which is the last phase of theology, and declares that it pretends to accomplish the discovery of the laws of the human mind by contemplating it in itself, that is by separating it from causes and effects." He adds that "in order to observe, your intellect must pause from activity, yet it is this very activity you want to observe. If you cannot effect the pause you cannot observe; if you do effect it there is nothing to observe. The results of such a method are in proportion to its absurdity" (**15 a**).

In the third volume of the same work, Comte renews his attack on the psychology of the schools, in a long chapter entitled, "*Considérations générales sur l'étude positive des fonctions intellectuelles et morales ou cérébrales*" (**14 a**). The very title of the chapter suggests his theory that all psychological functions are, in essence, changes of the brain, and that psychology is merely cerebral biology. "Introspection" (*observation intérieure*), says Comte once more, "is a vain method which invokes an impossible supposition." But assuming that introspection is possible, such a method, as Broussais remarked, would greatly restrict the study of intelligence, confining it to adult normal human beings. It moreover renders an animal psychology impossible. "In returning to the first principles of philosophical common sense," continues Comte, "it is in the first place evident that no function should be studied but in relation to the organ which fulfills it, or as to the phenomena of its fulfillment; and in the second place, that affective functions, and above all intellectual functions, present by nature . . . the peculiar

character of not being capable of direct observation during their fulfillment but solely in their more or less proximate and durable results." "There are, therefore," continues Comte, "but two distinct methods of considering such an order of functions: (1) either by determining with all the possible precision the diverse organic conditions on which they depend, which constitutes the principal object of phrenological physiology, or (2) by observing directly the effective sequence of intellectual and moral reactions, which belong rather to natural history . . . these two inseparable aspects of a single subject being, moreover, conceived in such a fashion as to mutually illuminate each another. Envisaged in this way, this great study is indissolubly united, on the one hand, to natural philosophy as a whole, and more especially to the fundamental doctrines of biology; on the other hand, to the whole of history, including the history of animals as well as of man, and even of humanity" (**14 b**). We have quoted *in extenso*, because in these sections Comte seems to have anticipated most of the criticisms and many of the demands of modern behaviorism.

Titchener (**49**), who also calls attention to Comte's critique, notes that Antoine Cournot, in a work on the scope and method of psychology ('Essai sur les fondements de nos connaissances,' 1851) published thirteen years after the appearance of Comte's work, declares that useful moral and intellectual observations are not the result of the contemplation or study of consciousness but the consequence of a study of behavior. Cournot, a follower of Bichat and Cabanis and influenced by Comte, wished to treat psychology as a natural science and make it a division of biology. Life and mind are simply phases of the spontaneity of living organisms, to be studied by similar objective methods. "Human psychology must be a science of a species or genus, and so must finally be a psychology of human society" (**10 b**), a conception which shows the influence of Comte.

Of Comte's followers the most original was G. H. Lewes, who regarded the specific problem of psychology to be that of reducing mental phenomena to organic causes. In short, the

psychologist's problem is to correlate the subjective with the objective and thus create a positive science. Lewes devotes an entire work of great merit to the study of the object, scope, and method of psychology. "Psychology," says Lewes, "is the analysis and classification of the sentient functions and faculties revealed to observation and induction, completed by the reduction of them to their *conditions of existence* biological and sociological" (**32 a**). As such it is a branch of biology and its method that pursued in the physical sciences (p. 8). It is somewhat less and somewhat more than the subjective theory of the organism (p. 25). It follows that Comte was wrong in entirely rejecting introspection, and indeed his grounds for doing so are partly untenable (pp. 84–86). But there are real limitations to the use of introspection, viz. its private nature, and the fact that its range is not coextensive with psychical phenomena (p. 99). Hence introspection can never be the exclusive method of psychology. Every mental fact is at once a state of feeling and a state of the organism, so that we must complete and verify the data of subjective analysis by analysis in objective terms. Objective analysis "embraces observation of men and animals as organisms and as units of society. The facts presented by zoölogy and history have to be reduced to their conditions in physiology and sociology" (**32 b**). In the absence of this reduction we only arrive at symptoms, not causes, but the aim of psychology is to become an objective and explanatory science, which implies a knowledge of causes.

Henry Maudsley, also a representative of the positivist position is even more materialistic than Lewes. While the latter regarded consciousness as the result of organic harmony, Maudsley considers it an epiphenomenon secondary to the instincts *i.e.* behavior, for purposes of psychological analysis. In a chapter on 'The Method of the Study of the Mind' (**37 b**), Maudsley subjects the method of introspection to an intensive criticism, in which he repeats the objections of his predecessors and adds new objections of his own. "We cannot," says Maudsley, "overestimate the importance of the fact that 'consciousness' is not coextensive with the

mind" (p. 15). There are both pre-conscious (Beneke) and unconscious realms of mental phenomena, which are inaccessible to introspection. Moreover, introspection or self-consciousness, as he calls it, yields no account of the residua of mental activities, which nevertheless exist, as is proved by the fact of recall under unusual circumstances (p. 16). Consciousness tells us nothing about inactive or statical mind, which is by far the more extensive sphere, and by which he seems to mean what McDougall calls mental structure. Even the most important part of mental activity is unconscious and hence inaccessible to introspection. The madman's and the animal's mind are equally closed to this method. Indeed, "He who thinks to illuminate the whole range of mental action by the light of his own consciousness is not unlike one who should go about to illuminate the universe with a rushlight" (**37 c**). Mind, though the most complex and difficult object in the realm of nature is still a part of it and must be studied in the same objective manner, as are other subjects.

We must therefore study psychology by the objective method, which includes genetic, physiological, pathological, and sociological investigations (p. 27), and, "He only is the true psychologist who, occupied with the observation of the whole of human nature, avails himself not only of every means which science affords for the investigation of the bodily conditions which assuredly underlie every display of function, conscious and unconscious, but also of every help which is furnished by the mental manifestations of animal and of man, whether undeveloped, degenerate, or cultivated" (**37 d**). Here is surely a behavioristic program, as radical as any one could desire.

We have seen how the French materialists and their German successors, attempted to reduce consciousness to an irrelevant phenomenon, and thus prepared the way for the endeavor to abolish it as material for scientific study. We have also seen how Cabanis tried to make the subject-matter of psychology objective, and how the positivists, accepting substantially the conclusions of both, devoted

themselves to a critique of introspection. We must now turn to a German movement, which stressed for the first time the demand for measurement and the quantitative treatment of the data of psychology. It is true that this school at first had no idea of departing from the traditional subject-matter of psychology, but cherished the hope of re-analyzing it in a form susceptible to mathematical treatment. The founder of this movement was Herbart, who wished to make of psychology a psychical mechanics. It is true that he opposed the idea of a physiological psychology on logical and metaphysical grounds, not realizing that this was the only direction in which an exact treatment of mental phenomena could succeed (**38 e**). His method consisted in the attempt to reduce all mental states to a single element (*Vorstellung*) a kind of psychic atom, subject to the laws of physics, and susceptible of precise measurement, and quantitative treatment. He thus introduced a kind of pseudo-objectivism culminating in the psychophysical assumptions of Fechner. But Herbart's psychology was important, says Merz, because it led psychologists to consider more closely the conditions under which a mathematical treatment is at all possible, and to recognize that exact and accurate measurements must precede all applications of an abstract calculus (**38 b**). Herbart's subject-matter was mythical, but his ideal of measurement became a demand in all subsequent psychology. The possibility of measuring the psychical attracted physiologists and physicists to psychological problems, resulting first in the classic work of Fechner and Weber on sensation, and subsequently to the voluminous work of a large modern German school of investigators, who approaching psychology from the standpoint of physiology and physics were always characterized by opposition to subjective methods and the use wherever possible of observation and experiment, in which introspection was merely verbal report. Hence Cattell (**13 a**), who was among the earliest to introduce German laboratory methods in America, declares that the notion that there is no psychology apart from introspection is refuted by the fact, and that most of the research work done

in his laboratory was "as independent of introspection as work in physics and zoology." American behaviorism evidently antidates the twentieth century.

Another direct source of modern objectivism is the development of functional psychology in contrast to the structural analysis of the older psychology. Functionalism is a half-way station to behaviorism, and, although it is a comparatively recent development in psychology, it was foreshadowed in the work of the early evolutionists, particularly Erasmus Darwin and Lamarck, in so far as they made mind a factor in evolution and were thus forced to emphasize its rôle as a means of biological adjustment. Erasmus Darwin (**16 a**) (1731–1802) offers in his 'Zoonomia,' a psychology written in terms of instinct, association, adaptation, and self-preservation, while Lamarck, as Baldwin (**3 a**) says, "recognized the psychological factor in one of his general principles viz. that in which he formulated the function of mind as effort, struggle, etc. in modifying the organism to accommodate it to the environment." Herbert Spencer worked out the implications of this view of mind in a speculative way, offering a psychology of a semi-objective type, but it required the work of Charles Darwin before the nature of mind as a special mechanism of adjustment came to be commonly recognized. At the same time interest in a transcendental ego, or subject, as a source of the specially psychical functions waned, until physiological and psychological functions came to be regarded as equally dependent upon the organism. Some functions were conscious while others were not, but the adaptive aspect, being of chief importance and equally evident in conscious and unconscious functions, there is a tendency in all functionalism to pass over into a pure objectivism, in which the objective phenomena attending the exercise of psychic activities, will alone receive consideration.

A less evident source of objectivism is the effort to found a psychology of the unconscious. This movement may be traced back to Leibnitz, who taught the existence of obscure perceptions. It appears as we have seen in Cabanis' doctrine

of unconscious or subconscious sensations, a doctrine in agreement with that of some modern psychologists such as Nuel and Bohn, who think that the essence of sensation is the neural phenomena attending its existence, its presence or absence in consciousness being irrelevant.

In other forms the concept of unconscious psychic elements is assumed in the subliminal interaction of Herbart's psychic atoms, and in the pre-conscious phenomena of Beneke.

We have already noted Maudsley's views on the extent of the unconscious elements of mind. Eduard von Hartmann (**23 a**) has summed up the criticisms of a psychology of consciousness implied in such views of mind. Explanation of the phenomenon of consciousness depend upon a knowledge of the related and causal phenomena which are not conscious, and therefore inaccessible to introspection. Hence, the psychology which has for its object the introspective study of consciousness must remain a purely descriptive psychology below the level of science. Such a purely descriptive psychology is incomprehensible to the inexperienced and superfluous to the experienced observer (p. 22). Hartmann points out that views of the nature of the unconscious may be defined, (1) in terms of external material physiological factors, or (2) in terms of internal immaterial psychic factors, or (3) in terms of the coöperation of both. The first direction leads to pure objectivism, while the Freudians seem to have developed the implications of the second view. Von Hartmann, who inclines to synthesize both points of view, defines psychology as "the science which investigates the dependence of conscious phenomena on the unconscious" (**23 b**). The investigation, however, requires objective methods, and von Hartmann enumerates a long list of sources for objective data. Among such sources are: "the observation of other human beings; the use of autobiographies; reflection; confessions and literary works; the study of the folk-mind in its various records; the comparison of all classes and conditions of men and animals down to the very simplest organisms; and the data of abnormal, experimental, and physiological psy-

chology" (**23 c**). All possible sources of objective data are to be used, though none are to be overestimated, a demand essentially similar to that which we noted earlier in Henry Maudsley's account of psychological method.

Perhaps something more should be said of the psychology of French and German materialism, particularly in its influence on recent developments. In a famous passage of the 'Rapports du physique et du moral de l'homme,' Cabanis states that, "in order to arrive at a correct idea of those operations from which thought arises, we must consider the brain as a particular organ destined specially to produce it in the same way as the stomach and intestines are there to perform digestion, the liver to filter the bile, and the parotid, maxillary, and sublingual glands to prepare the salivary juice." This was intended as a simile, to bring out the functional nature of mental operations. It was repeated in a more offensive form by Vogt, Moleschott, and Buchner, doubtless also in an analogical sense, but some of the followers of the school seem to have taken the comparison as a statement of identity, and returned to a quasi-animistic conception of mental substance. Others interpret mental activity in terms of energy. In either case, mind becomes something objective, capable of exact scientific treatment in theory at least. Where, on the other hand, mind as the product of the brain is viewed as an epiphenomenon, motives for its investigation cease altogether, and there is a tendency to study the energy changes attending the appearance of epiphenomena rather than such states in themselves. As moments in the development of this point of view we may mention, (1) the mind-stuff theory of Clifford criticized by Wm. James, and (2) Montague's conception of consciousness as energy, or rather as the transformation of potential into kinetic energy. The philosophy of *Energetik* also tends logically to a psychology of the same type, viz. a psychodynamics in which psychology becomes a branch of physics, to be pursued by strictly objective methods in the interest of quantitative results. But all of this belongs rather to the genesis of philosophical behaviorism, than to the psycho-

logical movement which occupies us. Many particular doctrines of modern behaviorisms might be traced similarly to remoter sources, but it will suffice to mention two. One is the interpretation of thought in terms of laryngeal reflexes, and the other the denial of images in some quarters.

It is clear that the theories of Geiger, Noiré, and Max Müller on the origin of language, as well as critical and experimental literature on inner speech which appeared shortly afterwards, tended logically to depreciate the value of the conscious element, and prepare the way for a complete identification of thought with its expressive movements. Geiger had declared as early as 1868 that "speech has created reason; before speech was developed man was irrational" (**21 a**). And Ludwig Noiré had sketched a theory of the origin of language out of the cries forced from groups of primitive men in the execution of common tasks. The vocal signs, corresponding to forced laryngeal movements, became associated with actions, and thus "acquired the power of recalling to mind these actions and the sensible images of their phenomenal effects" (**42 a, b, 43**). This theory, which was really a return to the Greek point of view identifying language and thought in the common term of *Logos*, was adopted by Max Müller in the shibboleth . . . "no reason without language, no language without reason" (**35 a**). Experimental studies of inner speech carried out by psychologists yielded conflicting results, but a conviction grew up that thought was carried on in terms of kinesthetic equivalents or incipient movements. Thought became internal conversation. Neither the philologists nor the psychologists denied or underestimated the conscious element of thought, but were merely interested in establishing its objective correlates. But it was a mere step to declare that the objective correlates were the only relevant elements involved, and to restate the problem of thought as that of determining the conditions under which language reflexes are connected in adaptive systems.

Indeed, parallelism between speech and thought is simply a special case of the general principle of psychophysical

parallelism with the additional assumption that the significant physical correlate is the vocal or laryngeal component.

The theory ends with neglecting the psychical component as an unnecessary duplicate of the relevant elements. In the same way a psychology which starts with strict psychophysical parallelism, may find the consideration of the psychical side of phenomena unnecessary to the elaboration of a science, indeed as an unjustifiable duplication of problems, if the criterion of science is taken to be economic arrangement of materials. The tendency to neglect the psychic factor will increase as more and more of the physical parallels are revealed to experimentation, and the logical outcome is pure behaviorism.

Even the school of imageless thought has contributed an element of behaviorism in denying the necessity of images in acts of thought. If images are often absent, it follows that they are relatively unimportant, and the behaviorist feels justified in reducing them to incipient movements, neglecting them, or denying them altogether.

It is now time to summarize our arguments and note their bearings on contemporary behaviorism. We have found:

1. Complete objectivism at the beginning of psychology in Greek philosophy, such dualisms as existed being of a purely objective nature.
2. A number of tendencies toward subject-object dualism, which crystallized in the clear-cut distinction of Descartes.
3. A mechanistic animal psychology in Descartes, which suggested the ideal of complete objectivism throughout the realm of psychology.
4. The endeavor to establish the foundations of an objective psychology on the part of French and German materialists, French ideologists, and positivists.
5. A tendency on the part of all these schools to depreciate consciousness as an object of scientific study by reducing it to an epiphenomenon assumed to be functionally inert.
6. The establishment of a quantitative ideal dating from Herbart.

7. A vigorous critique of introspection, emanating from positivists and exponents of the psychology of the unconscious.
8. The persistent ideal of a universal psychology, *i.e.* one capable of dealing with mind in all kinds of organisms under all possible conditions.

It is therefore clear that no form of contemporary behaviorism represents more than a new synthesis of previously existing demands and criticisms, some of which have recurred at intervals throughout the history of psychology. That certain modern forms of behaviorism are more successful syntheses than the past can offer, is due to the greater accumulation of facts at the disposal of the modern behaviorist and to the increasing perfection of instrumentation and technique. But that any present behaviorism is final, is improbable, and we may expect for a long time new syntheses perhaps equally unconscious of their historical origins. Certain other motives, some of them relatively new, of course, appear. Such are, (1) the desire for simplicity. Behaviorism is less difficult in practice than mentalism. (2) The desire to banish certain philosophical problems, *e.g.* the mind-body problem, from the domain of psychology. For behaviorism of a certain type there is no mind-body problem, just as there was none to Aristotle. (3) Finally, behaviorism offers a terminology and method which mystics and obscurantists cannot readily turn to their purposes, so that such a psychology is preserved from the unscientific associations which mentalism must endure.

To have shown the historical basis of behaviorism may seem perhaps to diminish the originality of its exponents, but at the same time it proves that behaviorism is no mere transient phenomenon as some of its opponents seem to think. It represents a recurrent phase in the history of psychology. A psychology of consciousness is followed by a psychology of action, when there is again a return to a psychology of consciousness. The presence of a dualism of any sort occasions attempts to transcend it, while a monistic viewpoint invites efforts to decompose it. Both phases are perhaps equally essential to a healthy progress in psychology.

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XUM

THE SUBJECT'S REPORT

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In previous papers on 'The Problem of Consciousness' and 'The Symbolic Process,' [1] we have arrived at the conclusion that 'consciousness' as a scientific concept is to be identified with a certain kind of stimulus-response situation. This situation is constituted typically of a language response to sensory stimulation. We have termed this situation an irreversible *SP-LR* relationship, where *SP* stands for a sensory process and *LR* indicates a language response. Language responses, which we have called symbolic processes, are substitute processes which have not as yet become so automatic as to lose their associative relations with the original stimulus-response situation. In the application of this hypothesis to the great array of problems clustering about the topic of the nature of 'consciousness,' it has been necessary to postpone any detailed consideration of the psychologist's method of study, namely, introspection. The present paper undertakes an analysis of this deferred problem. However, as anthroponomists [2] we are concerned not merely with the narrow problem of introspection but with the systematic aspects of the whole problem of the subject's report. Although, as a psychological method, introspection has far overshadowed in importance the general problem of the subject's report, it is in the last analysis but one of the many forms of report. As one type of report, introspection must be seen in its place as a kind of stimulus-response situation before its range and significance as a scientific

[1] PSYCHOL. REV., 1924, 31, 1–31 and 478–497.

[2] In an article entitled 'General Anthroponomy and Its Systematic Problems, *Amer. J. Psychol.*, 1925, 36, I have proposed this new term to designate the scientific students of human nature as opposed to the term 'psychologist' which designates those who would study only a psyche which is assumed to exist in connection with certain observable behavior.

method can be evaluated. Introspection is explicitly regarded by the psychologist as *the* method of report upon the presence and nature of the psychic process. The introspective report thus becomes, implicitly, an objective criterion of the presence of consciousness. The present paper, written from the anthroponomical rather than from the psychological point of view, will be concerned with introspection only as a possible method of giving information concerning the irreversible ***SP-LR*** relationship. In order to examine this possible use of the psychological method, it is necessary to understand the psychologist's own exposition of his method. Whatever we may think of the confusion which has existed in the meaning of the term introspection, we must not assume that every one agrees in the understanding of the simple term 'the subject's report.' The behaviorists have not been unwilling to accept *testimony* as a possible source of evidence in their investigations, and yet there is so little agreement on the term that Gamble can write as follows:[1] "To this the reviewer [Gamble] would in turn retort that if the behaviorist means by 'the testimony of the subject' what the introspectionist means by it, and yet is willing to harbor it even as an occasional assistant, then indeed *cadit quaestio*! Instead of two warring factions we have merely a collection of psychologists who vary more or less among themselves in their relative predilection for the methods of introspection and external observation. But if the behaviorist means something else by the testimony of the subject, then *to what does the subject testify?* Surely he does not need to testify to his visible movements and he cannot testify to his nervous and glandular processes. If he testifies to *feeling* his incipient speech reactions, then indeed we have an introspective report in the old sense." The present discussion as it proceeds will give our answers to these questions of Professor Gamble. We turn now to an outline of the general problem of the subject's report.

The simplest and most dependable type of report occurs where the stimulus as well as the response is present and

[1] Gamble, E. Mc., *J. Abn. and Soc. Psychol.*, 1924, 18, 436.

identifiable by the experimenter. Thus, to take a specific instance, the pupil of the eye contracts both to an increased intensity of retinal stimulation and to an increased convergence of the eyes. Either form of stimulation may be present and observed by the experimenter in connection with the response. Where this is true, the response becomes an evidence for, or a report of, the stimulation, although the stimulation is also evidenced to the experimenter by other means. Moreover, because of previous experimental data relevant to the situation, the pupillary response reports to the experimenter the integrity of the neural mechanisms concerned. Although this integrity is a datum not open to immediate verification except by a change of the experimental conditions, practical necessity justifies the inference of its presence. Not only may the pupillary response report the otherwise observable stimulus which elicits it and the presence of a functionally adequate neural mechanism, but it also reports the presence of all factors which have been proved indispensable to its existence. In such cases we pass beyond the first simple type of report to one more complex.

The second form of report exists where the nature of the stimulus is not immediately and directly determinable by the experimenter. Thus the experimenter may note only the increased state of contraction of the pupil. This changed behavior of the eye is a report of changed retinal stimulation or of changed activity in the extrinsic eye-muscles, or of both. Until the conditions of observation are controlled more precisely, the report is ambiguous. Again, the experimenter may note that the subject sneezes. Knowing that sneezing may be produced by an irritation of the nasal passages, and excluding the possibility that the sneeze was produced by stimuli made effective through training and now aroused by the associative mechanism, the experimenter is warranted in treating the sneeze as a report of irritated nasal passages in the subject. Any response is a report of the presence of one or more of its possible determining conditions. Whatever ambiguity the response may have can only be controlled by controlling the experimental conditions at the time of the

response. Under natural conditions, where any one of several forms of stimulation is known to be capable of producing the response, it is impossible to treat the response as a report of any specific stimulation.

A third form of report should be distinguished where the response is one of language. We have already discussed symbolic behavior in the article above cited, and we need not here rehearse the difficulties surrounding any determination of the language character of a specific response. Where such a determination can be made, however, the response may be safely treated as a report of the process or situation symbolized. This third form of report is always a learned response and is always under the organism's control either through the self-stimulation of receptors or through centrally conditioned processes. The language response may or may not be treated by the experimenter as a report of the presence and character of the irreversible *SP-LR* relationships. It may be regarded as an indication of neural integrity or of intelligence level. *The distinction must be made in this connection between behavior which is a report to the experimenter and behavior which is a report to the subject.* Gamble, in the quotation given above, undoubtedly has in mind testimony which is made not only *by* the subject but also *to* the subject as well as to the experimenter. Testimony, however, although given *by* the subject may be given only *to* the experimenter. A report *to* the subject, *i.e.* a report from the subject's point of view, is always a part of some Type-*X* situation.[1] Let us illustrate. A sensory process (*SP*) is aroused in the subject through stimulation by the pulse-beat in his right wrist. This *SP* gives rise to an *LR*, the words 'rapid pulse.' In this case the response conditioned by the *SP* may be a report

[1] The following quotation from the paper on the 'Nature of Consciousness' (page 11) is offered in explanation of the Type-*X* situation: "Here, then, at the conclusion of this brief examination of language activity, we may repeat the statement first made that the presentation of a given stimulus with the instructions 'What is it?' may be followed by a language activity in an organism possessing: (1) a certain receptor capacity, (2) a certain habit history, and (3) language ability. This phenomenon is observable and verifiable and is typified in what we shall term, for convenience of future reference, the *Type-X situation, where the language response 'red' follows upon a certain visual stimulus and a certain instruction-stimulus.*"

to the subject of an irritable heart, and the case differs in no essential particular from those first discussed in this paper. If the words 'rapid pulse' follow the stimulation automatically, *i.e.* if they are not symbolic processes, then the stimulus-response situation does not come under the Type-*X* situation, and the response is neither language nor a report from the subject's point of view. The subjectivist describes this by saying that the subject was not conscious of the pulse and that the response was made unconsciously. As anthroponomists we should say that where the stimulus-response process here described is symbolic in character the subject has been trained to say, "I feel this." We may select another example for purposes of further illustration. Let us suppose that stomach contractions are in progress in the subject and that vocal contractions also occur producing the word-response *I-am-hungry*. (In an adult subject many other connections symbolic and otherwise will have been conditioned to the stimulus and may now be active, but we ignore these for the purpose of simple description.) If the response is an *LR*, it is a report to the subject that hunger with its consequences is present. To the extent that 'its consequences' are developed through association into Type-*X* situations, to that extent it is said that the significance of the situation is elaborated by the subject. As the *SP-LR* processes occur, they may condition other responses in a trained subject. These responses often leave a record on paper, on a phonograph, or on other devices with the result that, although not a part of a Type-*X* situation, the record constitutes a more or less detailed and a more or less reliable evidence of the presence and the nature of the Type-*X* situation.

If we now consider the problem from the point of view of a report to the experimenter, neither of the responses *rapid pulse* or *I-am-hungry* can by itself be taken as a sufficient indication of the presence of a Type-*X* situation in the subject. In order to use either as a report in this sense, it would be necessary for the experimenter to have some more precise method than that of his clinical picture of alertness with

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which to identify the individual symbolic process. The reports cannot even be used by the experimenter as unambiguous evidence of the presence of specific stimuli. The internal conditions of response are too shifting and complex to make such inferences conclusive. At best one can only (in the case of *I-am-hungry*) examine the state of hunger contractions in the subject and so by circumstantial evidence seek to show that this stimulating condition was reported by the response.

It is worth while noting that verbal behavior may be found in all three forms of report. From the standpoint of everyday needs as well as from that of experimental anthroponomy, verbal behavior offers the most varied and complex system of responses to the stimulations which arise in the social aspects of the environment. Verbal behavior, furthermore, is so often language behavior and is distinguished from language behavior at all other times with such great difficulty that the functional psychologist practically uses it as synonymous with introspection. The structural psychologist, however, will only call verbal behavior introspection when the verbal responses are in his own peculiar jargon. Verbal behavior deserves special mention in a discussion of introspection largely because the language type of report is usually cast in this form. It is the symbolic (language) response, however, which evidences the presence of the Type-*X* situation and not merely the verbal response.

So far we have considered the subject's report as though it were a relatively free associative response. As a matter of fact, in the usual introspective situation, the responses made by the subject are definitely under the control of an instruction-stimulus presented by the experimenter. This instruction-stimulus, or its residual effect called the *Aufgabe* by psychologists, can be so varied by the experimenter that the responses elicited in the subject will be of the less rather than of the more automatic type. In this manner, the probability of the presumption that the response is a case of language behavior may be increased.

To summarize: Behavior is a report from the subject's

point of view only when it constitutes a part of his irreversible *SP-LR* relationships. On the other hand, any behavior of the subject is a report to the experimenter limited in its extent only by the latter's training; but it becomes a report to the experimenter only by becoming in turn a part of his irreversible *SP-LR* relationships, *i.e.* by becoming a stimulus for the experimenter's own language responses.

Since, as anthroponomists, we find no evidence of a psyche, we cannot accept introspection as a scientific method in the sense of a method which seeks to throw light upon a 'consciousness' conceived in terms other than of the irreversible *SP-LR* relationship. But even if we substitute for introspection the specific phenomenon of the subject's language behavior, we are at present still far from a dependable scientific method for two fundamental reasons. First, there has been developed no certain method of identifying the individual language process and thus of marking it off from the great mass of automatized forms of behavior. Second, where the subject's report is most necessary, viz., in those cases where the determining conditions of response are inaccessible to the experimenter, the multiplicity of possibly active determining conditions is such as to render uncertain any inferences concerning the presence of any one determining condition. It is this latter reason which makes the general method of report by the subject a less dependable one for the investigation of human nature than the procedure (for which we have no specific name) which studies behavior without reference to the evidence which it affords for non-observable phenomena. That this is true we may illustrate with the following examples: (1) Investigations of the learning process are more reliable with reference to the number of trials required than they are with reference either to the physiological processes concerned or to the rôle of 'consciousness' in the improvement. (2) Studies of recall arrive at more dependable conclusions where responses are correlated with the original stimulating conditions and with the experimentally introduced factors than where the subject's responses are used as a report of subjective methods of recall.

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And (3) experiments on lifted weights give more dependable evidence on the amount of stimulus difference necessary to condition differential responses than they do on the amount of differences in sensation intensities. Trustworthiness in the field of evidence decreases with the increase in the amount of inference. And behavior, when viewed as a report of non-observable phenomena, involves more inference than when not so viewed.

With these points in mind, let us examine what the psychologists have to say concerning introspection. As a result of such an examination, we should have clearly in mind the chief characteristics of the method. With this information, it will be possible to indicate specifically how the psychologist's fundamental method fits into the anthroponomical program. Typical quotations follow:

"[In introspection] . . . one has merely to ask oneself such questions as: 'How do I actually feel?' 'What do I mean when I say that I perceive, remember, believe?'"

"The method has obvious advantages. It makes no especial conditions of time and place; it requires no mechanical adjunct; it demands no difficult search for suitable material; at any moment, in all surroundings, with no external outfit, one may study the rich material provided by every imaginable experience. . . . The apparent facility of introspection is, however, one of its greatest dangers. Nothing seems easier than to render to ourselves a true account of what goes on in our consciousness. We are tempted, therefore, to overlook the need of training in introspection and to minimize its characteristic difficulties. Chief among these is the change which it makes in its own object. To attend to a particular experience actually alters it. If I ask myself in the midst of a hearty laugh, 'Just what is this feeling of amusement?' forthwith the feeling has vanished, and a strenuous, serious mood has taken its place. Much the same is true of every form of consciousness. To observe myself perceiving, remembering, or judging is no longer simply to perceive, to remember, and to judge, but to reflect upon perception, memory, and judgment. It is true, therefore, as many

psychologists have shown, that introspection is never of the immediate present, but is rather a case of memory, and subject, therefore, to all the uncertainties of memory." [1]

"The ideal introspective report is an accurate description, made in the interests of psychology, of some conscious process. Causation, dependence, development are then matters of inference." [2]

". . . this introspection, or observation from the standpoint of psychology, is the unique business of the psychologist; it is something that the psychologist's training fits him to do, and that no other form of scientific training leads up to or includes. Everything else that belongs to the system of psychology can, formally or theoretically, be done just as well by the physicist or biologist as by the psychologist. . . . Introspection, then, is in a peculiar and exclusive sense the business of the psychologist, and it is well that this business should have a specific name." [3]

"The categories of description, I should reply, are the last terms of analysis, the elementary processes and their attributes; and consciousness has been described when analysis is, qualitatively and quantitatively, complete." [4]

"By the 'description' of an object we mean an account so full and so definite that one to whom the object itself is unfamiliar can nevertheless, given skill and materials, reconstruct it from the verbal formula. Every discriminable part or feature of the object is unambiguously named; there is a one-to-one correlation of symbols and the empirical items symbolized; . . . This, then, is what we mean by 'description' in psychology; . . . ." [5]

"It may be doubted whether we have attained to complete description in any department of psychology; . . . . Fortunately, however, completeness of description is not necessary to scientific advance. When we have carried our analysis

[1] Calkins, M. W., 'A Firstbook in Psychology,' 1914, p. 7.

[2] Titchener, E. B., 'The Schema of Introspection,' *Amer. J. Psychol.*, 1912, 23, 486.

[3] Titchener, E. B., *ibid.*, p. 488.

[4] Titchener, E. B., *ibid.*, p. 495.

[5] Titchener, E. B., 'Description *vs.* Statement of Meaning.' *Amer. J. Psychol.*, 1912, 23, 165.

and abstraction as far as present methods allow, we can sum up the results in collective terms, and thereafter employ these terms for descriptive purposes; . . . . This procedure may be continued until we reach the 'conceptual shorthand' of which Pearson speaks; we are still describing, because we are going on the assumption, expressed or understood, that the road to the ultimate terms of description is always open, that we can work back from our concepts to our point of departure,—practically, to the attitudes and forms and feelings from which we agreed to start, theoretically, to the elementary processes and irreducible attributes whose verbal correlates furnish the most nearly 'complete' description of which the science is capable." [1]

"What I [Dürr] mean by this antithesis of 'verbal statement' and 'psychological description' will perhaps become clearer if I suggest that the layman in psychology would be giving introspective reports every time that he exchanged thoughts with a friend, unless there were some difference between verbal expression and psychological description." [2] The distinction between these two forms of behavior Titchener believes (*ibid.*, pp. 178–181) to be that the subject's attitude in the one case is that of descriptive psychology, and in the other case that of logic or of logical common sense. It would seem, however, that Titchener's position upon the non-introspective character of the stimulus-error response is essentially but a logical consequence of his refusal to list 'meaning' as one of the essential attributes of the elementary process. If introspection is to be in terms of elements and attributes, then obviously any statement of meaning is to be frowned upon.

Washburn has sought to show that the behaviorist can make use of introspection, and it will therefore be worth our while to examine her position briefly. She suggests the term 'symptomatic language behavior' as the behaviorist's equivalent of the psychological method, defining the expression as follows: "The following, then, may serve as a behavioristic

[1] Titchener, E. B., *ibid.*, p. 166.

[2] Quoted from Dürr by Titchener, *ibid.*, p. 169.

definition of language: sounds or movements made by the striped muscles of the body, and determined in part by the behavior of other animal organisms and by the effects of past stimulation through the behavior of other animal organisms."[1] The context of this formal definition makes clear that unless the behavior is made for a purpose, it is not language. And yet no criterion of purposefulness is offered. The definition itself is inadequate inasmuch as it would cover a child's withdrawal from an impending blow from its father as well as many other similar conditioned reflex types of response. It is not our intention here to expand upon the discussion of symbols and of purposefulness outlined in previous articles. It is sufficient for our present topic to point out that Washburn identifies introspection and 'symptomatic language behavior' and that she thus departs fundamentally from the current conception of the former process as described by other structuralists. From her point of view introspections should be available from the infancy of the human animal until its death or prior loss of language behavior. Washburn discusses at some length the problem of the trustworthiness of introspection, and if she were content to argue that verbal behavior in general could be used as trustworthy evidence for certain verifiable forms of stimulation and as the best circumstantial evidence for certain non-verifiable neural processes, her position would be acceptable. However, throughout the paper runs the implication (and the assertion) that introspection also indicates the existence and nature of conscious processes conceived as belonging to a separate world or phase of existence. There is, however, no proof of this, and the failure to arrive at an adequate analysis of language as opposed to verbal behavior leaves but little of certain value in the definition of introspection.

If we gather together now the essential characteristics of introspection as described by the subjectivists, we have the following:

[1] Washburn, M. F., 'Introspection as an Objective Method,' PSYCHOL. REV., 1922, **29**, p. 96.

CHARACTERISTICS OF INTROSPECTION

I. The subject may or may not be conscious of the introspective report.

II. Introspection is in a peculiar and exclusive sense the business of the psychologist.

III. It is also the fundamental method of the science.

IV. Introspection implies, on the part of the subject, a purpose to observe and report.

V. It is not a method which will:
   (*a*) disclose causal connections between conscious processes,
   (*b*) furnish a system of psychology, or
   (*c*) be uninfluenced by prejudice and poor training on the part of the user.

VI. It may be immediate or retrospective.

VII. Some hypothesis with reference to the relation of Mind and Body is a necessary implication in the introspective report.

VIII. In so far as it avoids statements of meaning, introspection also avoids a description of the object which is assumed to arouse the state of consciousness. Such a description, when given, is a stimulus-error.

IX. Introspection describes conscious processes unambiguously:
   (*a*) in terms of elements and attributes; and, since meaning is not an attribute of elementary conscious processes, statements of meaning are excluded from the acceptable introspective report (Structuralists);
   or (*b*) in psychological or in everyday language (Functionalists).

It is not our purpose to assume the standpoint of the psychologist and then to examine critically these various characteristics of the introspective report. If we were to do this, it would be important to point out such shortcomings as the following: (1) No analysis is made of 'the

purpose to observe.' (2) Nothing is said about what process does the observing. (3) The stimulus-error is not a fundamental misuse of the method, as the structuralists claim, but is the logical consequence of the exclusion of meaning from the list of essential attributes. And (4) the psychologist's account of his method contains little concerning the distinction between report from the subject's point of view and report from the standpoint of the observer. It will undoubtedly be vexatious to many that we should raise these questions and then fail to discuss them upon a plane where the psychologists can meet us. Our own judgment of relative values, however, leads us in another direction.

What is the relationship between the subject's report as described above (particularly the third form, p. 156) and the introspection of the psychologists? We may consider this problem in terms of the items listed above as 'characteristics of introspection,' giving first the characteristics which are common to the two methods. I. When the subject responds, "I see red," under stimulation by a red object and by an auditory question, "What color do you see?" he may be able later to report, "I said, 'I see red.'" In this case he is said (by the psychologists) to have been conscious of his first report. Only where a subsequent report can be evoked is there any evidence that the antecedent report has been a part of an irreversible *SP-LR* relationship ('consciousness'). II. The subject's report presents problems which are studied almost exclusively by the psychologist and the anthroponomist. IV. The report is also partially determined by the problem set by the questioner or by the subject. In the latter case the response is said to be purposeful. (See the paper on 'The Symbolic Process.') The characteristics listed under V obviously apply to any scientific method of gathering data. VI. The subject's report may be immediate or retrospective, *i.e.* it may be considered with reference to its present or its past determining conditions.

The remaining four characteristics of our list do not apply to the subject's report. III. While this method of report is both a method used and a subject-matter investigated chiefly

by anthroponomists, it is in no sense either the fundamental method or the fundamental problem of the science. This fact our paper on 'General Anthroponomy and Its Systematic Problems' has clearly indicated. Anthroponomy is interested in the broad field of the scientific analysis and description of human nature, in which field the subject's report is but one of the important problems. Again VII, the subject's report, implies no hypothesis with reference to the existence of mind or with reference to the relationship of mind and body. The subject's report involves behavior which is related to the meaning, or significance, of conditioning situations as well as behavior which is related to the so-called qualitative aspect of irreversible *SP-LR* relationships. An investigator may place whatever limitations he may desire upon the character of the report to be made by the subject. He may confine it to a report in terms of a behavior which indicates the so-called elements and attributes. Whatever instructions or training the investigator gives his subject upon the problem of *how* to report will obviously modify the nature of the report made. Some modification of this type is inevitable, but it remains to be demonstrated that instructions and training in the technical terms adopted by the structuralists are more adequate for a scientific report than instruction and training in the terminology of the broader point of view of the anthroponomist.

Finally, IX, does the subject's report describe 'consciousness,' or the irreversible *SP-LR* relationship, unambiguously? Indeed, does the report describe anything unambiguously? The answer has already been partly given earlier in the present paper. No behavior viewed as a report of events, which are not otherwise directly open to investigation, is unambiguous. And yet such behavior may constitute the most desirable of available methods for arriving at an understanding of the phenomenon in question. There seems to be no reason to doubt that the subject's language behavior, when properly directed by questions and training, may give valuable data on the character of present and previous irreversible *SP-LR* relationships. Thus the subject

may say, "I see (or saw) red," or "I am (or was) hurt." Here evidence, perhaps the only evidence practically obtainable, is offered for stimulating conditions which are not otherwise immediately verifiable. Whether or not these stimulating conditions are parts of Type-*X* situations depends upon the symbolic character of the response. Under practical conditions, the investigator supports his assumption that the report refers to irreversible *SP-LR* processes by calling upon his clinical picture of how the subject acts when such processes are probably present.

When we are asked what to do, as anthroponomists, with the vast introspective compilations of the psychologists, we are faced with a very important practical issue. Is all of this material to be neglected and the science to start anew? Why, since introspection is a report by the subject, should the anthroponomist not utilize the fruits of the psychologists' labors? In the first place, it should be said that neglect of the introspective reports so far gathered is not equivalent to starting the science of human nature anew, for much solid non-introspective work has already been done. In the second place, the point must be made that the majority of introspective reports can only be evaluated from the objective point of view with the greatest uncertainty and difficulty. The situation is not unlike that which James noted with reference to his theory of emotions. James' critics had said that, in place of condemning the previous attempts at the analysis of emotional expression, he should have been tremendously grateful for them. James' reply was as follows: ". . . the merely descriptive literature of the emotions is one of the most tedious parts of psychology. And not only is it tedious, but you feel that its subdivisions are to a great extent either fictitious or unimportant, and that its pretences to accuracy are a sham. But, unfortunately, there is little psychological writing about the emotions which is not merely descriptive. . . . But as far as 'scientific psychology' of the emotions goes, I may have been surfeited by too much reading of classic works on the subject, but I should as lief read verbal descriptions of the shapes of the rocks on a New Hampshire

farm as toil through them again. They give me nowhere a central point of view, or a deductive or generative principle. They distinguish and refine and specify *in infinitum* without ever getting on to another logical level." [1]

It would be a Herculean task to canvas the literature, amassed by the describers of 'consciousness,' in an effort to separate that which is acceptable from that which is not. However, as anthroponomists build experimentally in the fields where the introspectionists have worked, it is reasonable to expect that the monographers will work over the literatures of their several subjects from the objective point of view. Thus we should know finally how much of this extensive literature is sound and usable. Our task in the present paper is the general evaluation of the method of the subject's report. The examination of the validity of specific reports is a task which must be undertaken by the investigator who deals with the situations in which the reports have been made. The present tendency among investigators seems to be to avoid a use of the third type (see above, p. 156) of subject's report because of its undetermined but low degree of reliability. There seems to be little desire to evaluate the reliability of specific instances of report as we have just suggested should be done. Such validity as these reports may have will without question depend upon the certainty of the connection between unobservable determining conditions and their associated responses and upon the rigidity of the control obtained of these determining conditions. Again it is to be expected that acceptable reports will be less reliable in proportion as they seek to reveal detailed conditioning factors, such as 'degrees of clearness,' 'the antagonism of affective processes,' 'vocality,' etc. Thus testimony to the presence of an irreversible *SP-LR* relationship may well have a higher reliability than testimony relative to the detailed types and characteristics of these relationships.

Does there exist at present an unambiguous method of report upon the irreversible *SP-LR* relationship? In other words, is there any behavior whose presence is *invariably*

[1] James, W., 'Principles of Psychology,' Vol. 2, p. 448.

determined chiefly or solely by a symbolic relationship to other stimulus-response connections? Our reply must be negative. Such symbolic relationships do exist during a certain portion of the learning period, but it is impossible to say with reference to any particular verbal response that it is certainly conditioned by the associative traces involved in a Type-*X* situation. The response may be automatic and of the chain-reflex type, in which case the psychologist says that a stimulus-error is committed or that the response was 'inattentively' executed. As anthroponomists, we merely say that the evidence offered in this case is ambiguous and that it is therefore less scientifically helpful than it might be.

If we attempt now to state briefly the position with reference to 'consciousness' in which the four papers on systematic anthroponomy ('The Problem of Consciousness,' 'The Symbolic Process,' 'General Anthroponomy and Its Systematic Problems,' and 'The Subject's Report') leave us, the result is as follows:

> The evidence, at present available, justifies the distinction between symbolic and non-symbolic processes. The symbolic (language) responses in conjunction with the sensory processes which initiate them are the observable equivalents of the psychic processes postulated by the psychologists. Although the psychologist has done extensive work in the description and analysis of (assumed) psychic processes, it is impossible to evaluate in general the resulting data. All of these data have been gathered from the non-genetic point of view which defines essential human nature in terms of 'consciousness' conceived in philosophical terms as a separate aspect of existence. With such a point of view, the anthroponomist as a scientist can neither agree nor work. The symbolic process, although of unique functional value in the realm of biological adjustment, is nevertheless but one of the many important aspects of human nature which come within the field of anthroponomical study. It is, moreover, an aspect which can only be

evaluated by being placed properly in relation to other stimulus-response phenomena. The anthroponomist utilizes the subject's report as one method of gathering data, but he recognizes the serious shortcomings of this method where an independent check of its truthfulness is unavailable. Between this report and introspection as described by the subjectivists, there are no vital similarities.

DISCUSSION

PURPOSIVE STRIVING AS A FUNDAMENTAL CATEGORY OF PSYCHOLOGY[1]

In this able address it seems to me that Professor McDougall has criticized the behavioristic point of view in psychology more severely than is justified by the facts, and the following discussion is an attempt to clarify some aspects of behaviorism that seem to have been neglected. In a paper which I presented at the same meeting[2] I developed a series of postulates which are designed to place the problems presented by individual and social achievement on the same fundamental basis as the problems of physics and chemistry. Professor McDougall regards such attempts as evidence of a lack of courage. Specifically, he states, "The 'behaviorist' slavishly accepts the physical sciences as his model, and seeks safety from the charge of being unscientific by confining himself to the use of the methods of observation, description, and explanation current in those sciences" (p. 306).

McDougall's fundamental conception is stated by himself as, "The life of man from birth to death is one long series of purposive strivings" (p. 307). As one way of stating an axiomatic fact there can be no objection to it, but as an axiom which is to serve as a basis for the deduction of subsequent theorems and corollaries, I do not see how the essential quantitative factor is to be introduced. If this conception is stated in a different form, it may be directly derived from premises more fundamental than the conception itself. To illustrate: If, as I maintain, the laws of direction and rate exclude, so far as mathematical theory indicates, the possibility of utter condensation, or utter dispersion, or a permanent stability (zero motion) of all the particles, the result is that limited electron-proton aggregates form motion groups of varying symmetries, configurations, and degrees of stability. From this it follows that

[1] Address of Professor William McDougall, President of the Section of Psychology of the British Association for the Advancement of Science, Toronto, August 1924.

Printed in the *Scientific Monthly*, 1924, **19**, 305–312. The page references in the text and footnotes refer to this article.

[2] 'One Set of Postulates for a Behavioristic Psychology.' PSYCHOL. REV., 1925 **32**, 83–87.

there can be no permanent stability, and McDougall's 'purposive striving' is merely another name for this limited stability of the electron-proton locus which I have designated as the human individual.[1] However, when human strivings are regarded as forms of protoplasmic instability, the conception becomes so general that it has lost the specificity which is necessary to establish it as a category in explaining human achievement.

Purposive striving as a fundamental category requires the development of sub-categories of (*a*) purposes, (*b*) strivings, and to reach a maximum of scientific utility it should be possible to state them in a quantitative form. This is implied by McDougall himself in the statement, "There is a vast range of differences in respect to the nearness or remoteness of the goal; and in respect also to the clearness, fullness and adequacy with which he [man] thinks of his goal. And there is also a wide range of differences between his successive strivings in a third respect, namely, in respect of the urgency, the intensity, the concentration, and output of energy manifested in his striving at any movement" [moment?], (p. 307). As a practical problem the behaviorist asks, What hope is there of reaching an agreement as to what objects and events shall be included under the various classes of purposes and strivings? and, What hope is there of developing a system of measurements by which quantitative interrelations can be established? If psychologists cannot agree on what facts are to be included under sense-qualities, mind, or consciousness, will they agree on what is to be included under the much less definitive category of purposive striving? That Dr. McDougall anticipates difficulty in establishing purposive categories seems indicated in the following: "Let us be content to postpone metaphysics and to start out from two indisputable empirical facts: first, the fact that sometimes men create new things, such as great works of art and literature and new scientific formulæ. Secondly, the fact that, when normal man simply and strongly desires a certain end and perceives certain bodily movements to be the means to that end, those movements follow upon that desire and that perception" (p. 311).

If we grant the request not to ask how a desire or a perception can produce a bodily movement, this restricts us to an enumeration and description of man's achievements. The descriptive phase is, of course, an important part of every scientific investigation, but when we ask, What are the categories according to which our

[1] Postulates 3, 4, 5 in article cited above.

observations shall be classified? we are merely given a negative program which begins and ends with a sentimental appeal to popular psychology. According to McDougall, "a psychology that ignores the all-pervading purposiveness of human life is of no use; for, if it is consistent, important words that are essential to the intelligent discussion of human affairs (such words as motive, intention, desire, will, responsibility, aspiration, ideal, striving, effort, interest) are of no meaning for it; or, if they are used, are used with a meaning so thin and so different from that of ordinary discourse, that profitable converse with the practical man is impossible" (p. 309). As a program for psychology this means the repudiation of the categories, awareness, sensation, consciousness, etc., and the substitution in their place of such categories as motives, desires, responsibilities, ideals, interests, etc. That it is easier to classify human ideals than it is to classify sensations, seems doubtful.

As to the suggestion that we 'postpone metaphysics' I would heartily concur if metaphysics is taken in the traditional sense, but if avoiding metaphysics merely means that we are to avoid attempts to understand the fundamental principles on which psychology is based, I do not agree. If for instance Professor McDougall is content to let the exact nature of purposive striving develop as 'the present limitations and imperfections of our understanding' develop, we are making the same error that has been made in the development of all the psychological systems. We are merely refusing to raise an issue which is essential for any experimental program. There was a time when it was only necessary for the scientist to walk around and carefully report the objects and the events that he observed. But most of this has already been done. The introduction of the experimental method brought with it the analysis of the objects and the events into their component and antecedent parts. Since everything that occurs simultaneously with an event is a component of that event, and everything that preceded an event is an antecedent of that event, scientific expediency requires that components and antecedents be classified into essential or non-essential for the particular experiment that is being conducted. For this reason, any experiment that is not based either implicitly or explicitly on some theory of causation is practically useless as contributing toward scientific or practical control.

I do not wish to imply that our fundamental conceptions should be unalterable. The physical sciences have demonstrated the

futility of this; but if whatever is to be included under purposive striving is to be purely a personal matter to be decided or not decided, how can any progress be made? The essential condition of all science is that the investigators must understand each other, and unless this agreement is reached at the very outset no amount of subsequent defining and classifying will lead to uniformity.

Traditional psychology started out with the assumption that the nature of consciousness was self-evident; 'everyone knows what consciousness is,' yet at the present time consciousness is about to be eliminated from psychology because no two people seem to be able to agree as to what facts are to be included under this term. Does the conception 'purposive striving' hold forth greater promise?

The behaviorist maintains that it is better to start out with a *uniform* conception even if experimental developments show that this conception must be frequently altered. How can we develop an explanation and experimental program of the study of human achievement if from the very beginning we are not agreed as to the nature of human achievement, the causal factors underlying it, the nature of the individual, and the methodology of investigation? This does not mean that it is necessary to be able to define a given term in a manner acceptable to every one. It does mean, however, that we must work backward toward some uniform conception that can be stated quantitatively. In my own system I have adopted the principle of motion or movement. I hold it as axiomatic that all human achievement, both personal and social, is a form of motion. The question arises, What kind of motion? The adequate answer would be the analysis of a given activity into the types of motion which the physicists have classified: as, motion to the right, left, up, down, circular, centrifugal, parabolic, elliptic, sinusoidal, slow, fast, variable, etc. Does this imply that I am at present able to designate by some system of coördinates, every movement, micro- and macroscopic, of the contractile effects and their resultants which we now call the League of Nations, for instance? Assuredly not. The physicist, who also postulates motion as fundamental, is only just beginning to reduce the motions of the electrons and protons within the atom to a system of co-ordinates. In mechanics and hydraulics he is still obliged to work with mass motion. The behaviorist is still more restricted and must rest content with those motion groupings at the complex end of the series: electrons, protons, atoms, molecules, protoplasms,

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protozoa, metazoa, and compound metazoic organizations as represented by animal and human groupings of which the League of Nations represents a terminal form. When I designate the League as a form of motion this means that it may be regarded as made up of (*a*) the movements of a particular group of administrators and experts, of (*b*) a system of records and reports which are also the products of the movements of individuals. The social institution which we call the League of Nations thus represents a specific series of movements which are the components of larger movement configurations, and the effects of antecedent movements. It is, of course, impossible for me to analyze these movements into their components and plot them on some system of coördinates of the Cartesian type, but the events making up the League can be classified on the principle of *equivalent orders*. For instance, the documents issued by the League from time to time represent a resultant of many other documents and verbal responses of other individuals; each of these in turn being a resultant of antecedent manual, verbal, and social conditions. The analysis may regress along two relatively independent lines: (*a*) an ontogenetic series tracing backward through the sensori-motor modifications of the activity in question to some infantile form of movement, (*b*) a phylogenetic series tracing backward through the social or institutional modifications of the activity to some primitive social form.[1]

This type of analysis requires no principles which have not been developed out of the methods of the other sciences. It places the program of psychology in with the other sciences. It uses the general scientific methods of measurement and description, entering into reciprocal relationship with the other sciences on equal terms, without being restricted by terms and definitions some of which, such as the soul, ego, image, sensation, consciousness, mind, have not achieved a scientific status although they are among the oldest in the language; others, as mentality, psychical energy, self-initiating drives and desires, which seem to be only terminological variants of these older terms. There is, of course, no valid reason why 'purposive striving' should not be regarded as a form of motion, except that McDougall insists upon introducing a form of antecedent (a purposive process) which cannot be measured, and insists upon a relation between cause and effect which is probably inverted, in the statement, "In the instances near the top, the more developed modes of mental life, involving the solving of a defined

[1] Postulates 9 and 10 in article cited above.

problem, the thinking out of a plan, we all recognize the purposive nature of the striving. The goal, as envisaged, governs the movements of both mind and body" (p. 307).

Suppose it is found that imagery, or the 'goal as envisaged' is only one of the effects of the sensori-motor modifications which are the actual causes of the 'movements.' If this should be the case 'the goal' (whatever McDougall may mean by this term) is merely a component or by-product, not a cause. From this there is no escape. According to Professor McDougall the analysis of human achievement leads to categories of 'purposive strivings' fundamental to which is some hypothetical 'purposive process.' None of these assumptions lend themselves to a quantitative analysis that will be generally accepted, and this practically means that they are excluded from science.

On the behavioristic assumptions, however, the analysis of any phase of human achievement leads into sensori-motor categories, on the one hand, and into history and statistics on the other. As its own field behavioristic psychology investigates those movements which establish the individual's social status in the group of which he is a member.

As a behaviorist I would not hesitate to accept 'purposive striving as a fundamental category in psychology' if such a category seemed to offer possibilities beyond the scope of physical science when the principles of physical science are developed along the lines indicated in my set of behavioristic postulates. I would be the last to maintain that these postulates are anything but working hypotheses to be altered or eliminated as new developments in science make this necessary.

In conclusion I wish to stress the fact that modern science is not the same as the science of a hundred years ago. McDougall says, "Let us not deny ourselves the right to build up a psychology that may be of use and value to our fellow-workers in the social sciences, because we cannot at present answer the most difficult of all questions. The physicist is equally nonplussed if you ask him comparable questions, such as, How does one molecule attract or repel another? What is the nature of chemical affinity? What is electricity? But he does not suspend his researches because his fundamental conceptions and assumptions are disputable and disputed, nor does he turn to some other branch of science in order to borrow from it others that have more prestige. Let us follow his example" (p. 312). If the physicist is nonplussed by the question

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"What is electricity?" the difficulty lies in the fact that the physicist is trying to answer a pseudo-question which was actually formulated for him by the psychologist or philosopher. The modern answer to the question resolves itself into the form, What objects and events which we may observe shall we include under the term 'electricity'? The fact that objects move away and toward each other is one of these observed facts. In measuring this type of movement such conceptions as volts, amperes, induction, direct and alternating currents, conductivity, resistance, etc., are developed. All of these objects and events are grouped together under the class name 'electrical objects and electrical events.' They *are* 'electricity.' When the physicist insists on finding some additional *force* or *energy* he is merely introducing a variant of the 'soul conception' into his science.

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